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HERKULES

customer	:	Hindalco Hirakud
machine identification	:	WS450 KL x 5500 CNC Monolith
drawing number	:	2953
commission	:	98290
year of manufacture	:	2022

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technical data

rated current of machine control (IEC 204-1;DIN EN 60204-1) : 192 A

rated voltage	Volt	phases	Hz	design		
rated operating voltage	415	3	50	☐ PE	☐ PE + N	☒ PEN
auxiliary supply 1	230	1	50	☒ AC	☐ DC	☐ separate feed
auxiliary supply 2	24	/	/	☐ AC	☒ DC	☐ separate feed
auxiliary supply 3		/	/	☐ AC	☐ DC	☐ separate feed

protective measures as per IEC 204-1, EN 60204-1, DIN VDE 0113-1 of the scope of supply of this order:

Accessible conductive parts not belonging to the auxiliary circuit that can in case of error accept directly voltage, are connected to the protective conductor terminal designated with PE

carry out further measures to fulfil the protective measures at the place of erection as per DIN VDE 0100 (e.g. connection N with PE- connection) provided by customer.!

constructed : 2020-02-18 Responsible for Project by (initials): PED Report Page Count : 252 Manual Page Count : 289

designed : 2022-11-04 Last Editor by (initials): Total Page Count : 541

general rules

customers specification is present — no

core designation — no

core colours
- 400V 3~ — black
- 230V 1~ — red, red/white (N)
- 24V/DC — blue, blue/white (ML)

seperate infeed — orange

front plates of control panels — aluminium

1. general explanation to the schematic drawings and wiring
   - A. marking of electrical equipments per DIN 81346-2
   - B. colour code for the wiring and installation
   - C. part list
   - D. cable diagram and cable list
   - E. terminal connection diagrams
   - F. terminal strip designation

2. circuit diagrams and internal circuit diagrams

   for the with ...-A..marked combinations

3. wiring connection diagrams and multipole plug connections

4. a. cable lists

   b. overview plan for the cable connectors between control cabinet and machine as well as for the location (routing) in and on the machine.

   c. dimension drawing of the control cabinet

5. device construction plans

6. parts list

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A. item designation

1. block = plant designation:

The block marked "system" has the sign "=" corresponds mainly.

The "Plant" designation block also serves the purpose of designation the circuit diagram and is entered in the title block.

If a represented function is distributed over a number of sheets, the related sheets are assigned the same "Plant" designation block.

=...

1	general instruction
01.A1	infeed 415V / supply 230V
01.A2	distribution 24V DC
01.A3	emergency stop control
11.H0	infeed-/feedback unit
11.H11	hydraulic softloader/ face plate adjustment
11.H16	hydraulic steady lubrication
21.C1.1	c-axis (MHS)
21.C1.2	grinding wheel
21.X1.1	X- axis
21.Z1.1	Z-axis
22.C2.1	headstock
22.Z2.2	headstock face plate adjustment Z
25.Z5.1	tailstock Z
25.Z5.2	quill Z
28.C8.1	C-Frame swivelling in/out
28.Y8.1	C-Frame Arm A+B (Lineal A)
28.Y8.2	C-Frame scale B
28.Y8.3	C-Frame probe A
28.Y8.4	C-Frame probe B
37.A17.1	swivel probe C
37.X17.2	probe C
47.Y27.1	TSS softloader Y
47.Y28.1	HSS Softloader Y
61.L1	water supply
61.L3	lubrication steadies (grease gun)
61.L4	fog lubrication steady
61.L5	scanning device
61.L6	balancing device
61.L11	jib crane
61.L14	oil disposal
71.M1	control
81.P3	aux.control desk headstock
81.P9	balancing device
81.P11	handwheel
91.S1	measuring gauge
91.S2	Eddychek
91.S3	Ultrasonic
91.S5	RSIS
91.S7	OptoSurf
91.S8	Synotech
91.S9	IBA
99.END	end of potential
X1.1	
XK1	terminal diagram
XS1	connector diagram
2	single-line diagramm
3	cable list
4	control cabinet construction
5	motor list

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	general instruction		= 1	function page
			design.	PED						+ E11	3/23
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				3

2. block = location designation:

The "Location" designation block has the prefix sign "+". The location designation indicates the position at which an item is situated, in which building, room, cabinet, rack or mounting station. The "Location" designation block is also entered in the title block..

+...

E1	control cabinets
E2	PC-cabinet +E1
E3	PC-cabinet +E2
E11	control cabinet 1 field 1
E12	control cabinet 1 field 2
E13	control cabinet 1 field 3
P11	handwheel
P12	control panel +P12
W1	cable switch cabinet 1 -> machine
L1	carriage terminal box
N1	terminal box headstock
P1	main control panel
P3	control panel headstock
P9	balancing device
S1	grinding bed
S2	workpiece bed
T1	headstock
T2	tailstock
T3	steady tailstock-side
T4	steady headstock-side
U1	grinding carriage
U2	grinding saddle
X1	grinding coolant water supply
X3	hydraulic face plate adjustment
X3.1	hydraulic
X12	water supply ultra sonic
Z1	measuring gauge
Z2	teminal box USONIC
Z4	printer
Z7	jib crane
Z13	crack detection

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3. block = designation kind, sheet, diagram section:

The "Kind, sheet, diagram section" designation block has the prefix sign "-" and is made up of three parts, as stated in the name. This designation block is sufficient, when the device is equal to the blocks plant and location in the right title block.If this is not the case and if e.g. the contacts of a device are situated on another sheet, the supplementary resp. the entire designation must be inserted.Mentioned below are the letter codes for designation of the "Kind" of an item, whereas xx stands for sheet and diagram section..

-....

A xx module, partial module
B xx converters, monitoring, sensors
C xx capacitors, hard drives, buffers
E xx lamps, heaters
F xx circuit breaker, fuses
G xx generators, batteries
K xx auxiliary contaktors, relays, valves, filters, regulators, CPU
M xx motors, drives
P xx signal devices, indikators, printer, monitors, control panels
Q xx fuse switch disconnectors, power switch, power contactors
R xx resistances, choke coils, diodes
S xx switches, regulators, buttons, keyboards
T xx transformers, power supplys, inverter
V xx filter, separator
W xx cable, wires
X xx terminals, plug connections

Example of a contactor contact :

=71.M1	+E1	-K80B	:23
plant	location	component	contact

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	general instruction		= 1 + E11	function page 5/23
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 5
change	date	name	norm		originally.	created for.	created by.				

B. colour code for the wiring and installation

a. black	all a.c. and d.c. power leads.
b. green/yellow	protective conductor, regardless whether the neutralization or the protective ground are used.
c. red	a.c. voltage control leads which are connected to the top end of the secondary winding of the control transformer and which is led via the control contacts of switches or operating elements as well as the limit switches.
d. red/white	AC control voltage, which is connected to the lower winding end of the secondary side of the control transformer and fed without interruption from solenoid coil to solenoid of the contactors, auxiliary and time relay and signal lamp to signal lamp.
e. blue	d.c. control circuits
f. blue/white	ground d.c. control circuits
g. orange	Where a circuit is not the mains isolating device switched off

C. part list

All devices of which the manufacturer is not specially mentioned, are products of the Siemens AG.In the indication of the auxiliary contacts of contactors and relays, 1NO=1 normally open contact, 1NC=1 normally closed and 1W=1 changeover or two-way contact. The magnetic coils of the contactors and relays are installed for the control voltages and frequencies on the first sheet. Should these devices be operated by a different voltage , this one is specially mentioned.

D. cable diagram and cable list

The cables to be installed between control cabinet and machine are marked with numbers in the cable plan, the cable list and in the terminal connection diagrams.Furthermore the voltage and current for each cable are written down in the cable list and the terminal connection diagrams.Exact details of the motors or the consumers that are connected via those cables can be seen from the part list.

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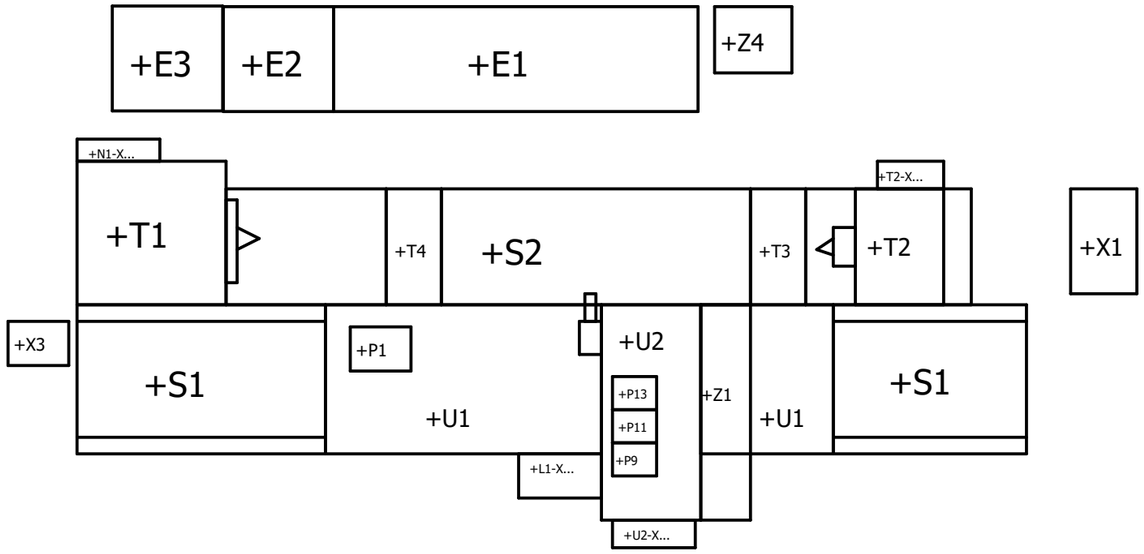
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	general instruction		= 1 + E11	function page 6/23
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 6
change	date	name	norm		originally.	created for.	created by.				

E. locations for individual equipment (in alphanumerical block)



a. assembly of the terminal strips

+E2-X1	PC-cabinet +E1
+E3-X1	PC-cabinet +E2
+E11-X1	control cabinet 1 field 1
+E13-X2	control cabinet 1 field 3
+L1-X1	carriage terminal box
+N1-X1;+N1-X2	terminal box headstock
+T2-X1	tailstock
+U2-X1;+U2-X2	grinding saddle
+X3-X1	hydraulic face plate adjustment
+X12-X1	water supply ultra sonic
+Z1-X1;+Z1-X2	measuring gauge
+Z2-X1	teminal box USONIC
+Z13-X1	crack detection

b. assembly of the plug connection

+E2	-X..	:	PC-cabinet +E1
+E3	-X..	:	PC-cabinet +E2
+E11	-X..	:	control cabinet 1 field 1
+E13	-X..	:	control cabinet 1 field 3
+P11	-X..	:	handwheel
+L1	-X..	:	carriage terminal box
+N1	-X..	:	terminal box headstock
+P1	-X..	:	main control panel
+S1	-X..	:	grinding bed
+T1	-X..	:	headstock
+T2	-X..	:	tailstock
+T3	-X..	:	steady tailstock-side
+T4	-X..	:	steady headstock-side
+U1	-X..	:	grinding carriage
+U2	-X..	:	grinding saddle
+X1	-X..	:	grinding coolant water supply
+X3	-X..	:	hydraulic face plate adjustment
+X12	-X..	:	water supply ultra sonic
+Z1	-X..	:	measuring gauge
+Z2	-X..	:	teminal box USONIC
+Z13	-X..	:	crack detection

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F. terminal strip designation

All terminals are numbered, even if they are parallel terminals.
The alphanumerical designation before the colon shows, where the terminal strip is located.

Terminals for ground and protective earth wire are marked with (PE) (it can also be a copper busbar).

Terminals for neutral wires are marked with the letter "N". All terminals are of non-tracking material..

The terminal connection diagrams reveal, where each connection comes from and where it goes to..

The cross sections and colours, that are indicated on the terminals refer to the wiring in the control cabinet or to the installation at the machine, thus are not valid for the connecting cables between the control cabinets and the machine..

A B C D E F G H J K L M N P Q R S T U V W X Y Z

column numbers for drawing page
example: this text begins with = 1/8J
group =1
page 8
column J

drawing page explanations

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next page
last page of the group
this side of the group
absolute page
Herkules drawing number
location
plant
Herkules commission
machine typ
page designation
previous page
date of the last change on this page

7 10

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	general instruction		= 1	function page
			design.	PED						+ E11	8/23
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				8

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plant	location	page	page designation	date	designer	
=1	+E11	1	cover page	2022-06-03	PED	
=1	+E11	2	general instruction	2021-08-19	WEI	
=1	+E11	3	general instruction	2022-06-03	PED	
=1	+E11	4	general instruction	2022-06-03	PED	
=1	+E11	5	general instruction	2021-08-19	WEI	
=1	+E11	6	general instruction	2021-08-19	WEI	
=1		7	general instruction	2022-06-03	PED	
=1	+E11	8	general instruction	2021-08-19	WEI	
=1	+E1	10	table of contents	2022-06-03	PED	
=1	+E1	11	table of contents	2022-06-03	PED	
=1	+E1	12	table of contents	2022-06-03	PED	
=1	+E1	13	table of contents	2022-06-03	PED	
=1	+E1	14	table of contents	2022-06-03	PED	
=1	+E1	15	table of contents	2022-06-03	PED	
=1	+E1	16	table of contents	2022-06-03	PED	
=1	+E1	17	table of contents	2022-06-03	PED	
=1	+E1	18	table of contents	2022-06-03	PED	
=1	+E1	19	table of contents	2022-06-03	PED	
=1	+E1	20	table of contents	2022-06-03	PED	
=1	+E1	21	table of contents	2022-06-03	PED	
=1	+E1	22	table of contents	2022-06-03	PED	
=1	+E1	23	table of contents	2022-06-03	PED	
=01.A1	+E11	1	infeed 415V/50Hz	2022-06-02	PED	
=01.A1	+E11	2	supply 230V/50Hz	2022-06-02	PED	
=01.A1	+E11	3	supply 230V/50Hz	2022-02-25	PED	
=01.A1	+E11	4	lighting	2021-08-31	PED	
=01.A1	+E11	5	air conditioner	2022-06-02	PED	
=01.A1	+E11	6	fan control cabinet	2021-08-31	PED	
=01.A1	+E11	7	receptacles 230V/50Hz	2022-06-02	PED	
=01.A1	+E11	8	receptacles 230V/50Hz	2022-06-02	PED	
=01.A1	+E11	9	infeed 415V/50Hz I/O	2022-06-03	PED	
=01.A1	+E11	10	infeed 415V/50Hz	2022-06-02	PED	
=01.A1	+E11	30	earthing control cabinet/machine	2022-06-02	PED	

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plant	location	page	page designation	date	designer	
=01.A1	+E11	31	earthing plugs	2022-06-02	PED	
=01.A1	+E11	35	earthing bus coupler	2022-06-02	PED	
=01.A1	+E11	36	earthing terminal boxes	2022-06-02	PED	
=01.A2	+E11	1	Power supply 24V DC	2022-06-02	PED	
=01.A2	+E11	2	Power supply 24V DC	2022-03-16	PED	
=01.A2	+E11	3	distribution 24V DC	2022-06-02	PED	
=01.A2	+E11	4	distribution 24V DC	2022-03-05	PED	
=01.A2	+E11	5	distribution 24V DC	2022-06-02	PED	
=01.A2	+E11	6	distribution 24V DC	2022-06-02	PED	
=01.A2	+E11	7	distribution 24V DC	2022-06-02	PED	
=01.A2	+E11	8	distribution 24V DC	2022-06-02	PED	
=01.A2	+E11	9	distribution 24V DC	2022-06-02	PED	
=01.A2	+E11	10	distribution 24 VDC	2022-06-02	PED	
=01.A2	+E13	11	distribution 48 VDC	2022-06-02	PED	
=01.A3	+E11	0	mounting DINA SL VARIO Control cabinet	2021-05-06	PED	
=01.A3	+E11	1	emergency stop control	2022-05-21	PED	
=01.A3	+E11	2	emergency stop control / DINA SL VARIO	2022-06-02	PED	
=01.A3	+E11	3	emergency stop control / DINA SL VARIO	2022-06-02	PED	
=01.A3	+E11	4	emergency stop control / DINA SL VARIO	2022-06-02	PED	
=01.A3	+E13	5	emergency stop control / DINA SL VARIO	2022-06-02	PED	
=01.A3	+E11	6	emergency stop control / DINA SL VARIO	2022-06-02	PED	
=01.A3	+E11	8	emergency stop control	2022-03-16	PED	
=01.A3	+E11	10	emergency end position control	2022-06-02	PED	
=01.A3	+E11	11	protective door grinding side	2022-06-03	PED	
=01.A3	+E11	12	protective door headstock	2022-06-02	PED	
=01.A3	+E11	14	safety doors	2022-06-02	PED	
=01.A3	+E11	15	light barrier work piece side	2022-06-02	PED	
=01.A3	+E11	16	light barrier machine bed	2022-01-21	PED	
=01.A3	+E11	20	emergency stop I/O	2021-08-31	PED	
=11.H0	+E11	1	mounting of Baumüller drives	2022-06-02	PED	
=11.H0	+E11	3	infeed-/feedback unit	2022-06-02	PED	
=11.H0	+E11	4	infeed-/feedback unit	2021-12-14	PED	
=11.H0	+E11	6	infeed-/feedback unit	2021-12-14	PED	

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plant	location	page	page designation	date	designer	
=11.H0	+E13	20	infeed-/feedback unit I/O	2021-10-25	PED	
=11.H11	+E11	1	hydraulic softloader / face plate adjustment	2022-06-02	PED	
=11.H11	+E11	20	hydraulic softloader / face plate adjustment I/O	2022-06-02	PED	
=21.C1.1	+E11	2	c-axis	2022-06-02	PED	
=21.C1.1	+L1	10	C-axis I/O	2021-08-19	WEI	
=21.C1.1	+E11	20	C-axis I/O	2021-10-25	PED	
=21.C1.2	+E11	1	grinding wheel	2022-06-02	PED	
=21.C1.2	+E11	2	grinding wheel	2022-02-22	PED	
=21.C1.2	+E11	3	grinding wheel	2022-03-16	PED	
=21.C1.2	+E11	4	grinding wheel	2021-12-14	PED	
=21.C1.2	+E11	7	grinding wheel fan	2022-06-02	PED	
=21.C1.2	+E11	8	grinding shaft lubrication	2022-03-16	PED	
=21.C1.2	+E11	10	grinding wheel I/O	2022-06-02	PED	
=21.C1.2	+E11	20	grinding wheel I/O	2021-10-25	PED	
=21.X1.1	+E11	1	X- axis	2022-06-02	PED	
=21.X1.1	+E11	2	X- axis	2022-06-02	PED	
=21.X1.1	+E11	3	X- axis	2022-06-02	PED	
=21.X1.1	+E11	4	X-axis emergency retreat	2022-06-02	PED	
=21.X1.1	+E11	5	X-axis lubrication	2022-06-02	PED	
=21.X1.1	+E11	10	X-axis I/O	2022-06-02	PED	
=21.X1.1	+E13	20	X-axis I/O	2021-10-25	PED	
=21.Z1.1	+E11	1	Z-axis	2022-03-07	PED	
=21.Z1.1	+E11	2	z-axis motor headstockside	2022-02-22	PED	
=21.Z1.1	+E11	3	z-axis motor tailstockside	2022-02-22	PED	
=21.Z1.1	+E11	4	Z-axis	2021-12-14	PED	
=21.Z1.1	+E11	5	Z-axis lubrication	2022-06-02	PED	
=21.Z1.1	+E11	6	Z-axis lubrication	2022-06-02	PED	
=21.Z1.1	+E11	10	Z-axis I/O	2022-06-02	PED	
=21.Z1.1	+E13	20	Z-axis I/O	2021-10-25	PED	
=22.C2.1	+E11	1	headstock	2021-12-14	PED	
=22.C2.1	+E11	2	headstock	2022-02-22	PED	
=22.C2.1	+E11	3	headstock	2022-03-16	PED	
=22.C2.1	+E11	4	headstock fan	2022-06-02	PED	

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plant	location	page	page designation	date	designer	
=22.C2.1	+S1	10	headstock I/O	2021-08-19	WEI	
=22.C2.1	+E13	20	headstock I/O	2021-10-25	PED	
=22.Z2.2	+T1	10	face plate adjustment I/O	2021-07-27	PED	
=22.Z2.2	+T1	20	face plate adjustment I/O	2022-06-02	PED	
=25.Z5.1	+E11	1	tailstock Z-adjustment	2022-06-02	PED	
=25.Z5.1	+E11	2	tailstock Z-adjustment	2022-06-02	PED	
=25.Z5.1	+E11	3	tailstock Z-adjustment	2022-02-17	PED	
=25.Z5.1	+E11	4	tailstock Z-adjustment lubrication	2022-06-02	PED	
=25.Z5.1	+T2	10	tailstock Z-adjustment I/O	2022-06-02	PED	
=25.Z5.1	+T2	21	tailstock Z-adjustment I/O	2021-10-25	PED	
=25.Z5.2	+T2	10	quill z-adjustment I/O	2021-08-31	PED	
=25.Z5.2	+T2	20	quill z-adjustment I/O	2021-08-19	WEI	
=25.Z5.2	+T2	21	quill z-adjustment I/O	2022-06-02	PED	
=28.C8.1	+Z1	1	C-Frame swivelling in/out	2022-06-02	PED	
=28.C8.1	+Z1	2	C-Frame swivelling in/out	2022-03-03	PED	
=28.C8.1	+Z1	10	C-Frame swivelling in/out I/O	2022-03-03	PED	
=28.C8.1	+Z1	20	C-Frame swivelling in/out I/O	2022-03-03	PED	
=28.Y8.1	+Z1	1	C-Frame arm A+B	2022-03-03	PED	
=28.Y8.1	+Z1	2	C-Frame arm A+B scale A	2022-06-02	PED	
=28.Y8.1	+Z1	10	C-Frame arm A+B I/O	2022-03-03	PED	
=28.Y8.1	+Z1	20	C-Frame arm A+B I/O	2021-10-11	PED	
=28.Y8.2	+Z1	1	C-Frame scale B	2021-10-25	PED	
=28.Y8.3	+Z1	1	C-Frame probe A	2021-10-22	PED	
=28.Y8.3	+Z1	10	C-Frame probe A I/O	2021-10-22	PED	
=28.Y8.4	+Z1	1	C-Frame probe B	2021-10-13	PED	
=28.Y8.4	+Z1	10	C-Frame probe B I/O	2021-10-11	PED	
=37.A17.1	+E11	1	C-Probe swiveling	2022-02-22	PED	
=37.A17.1	+E11	10	probe C I/O	2022-06-02	PED	
=37.X17.2	+U2	1	C-probe	2021-05-18	PED	
=47.Y27.1	+T3	10	RSS softloader I/O	2022-06-02	PED	
=47.Y28.1	+T4	10	HS Softloader I/O	2022-06-02	PED	
=61.L1	+E11	1	water supply	2022-06-02	PED	
=61.L1	+E11	2	water supply	2022-06-02	PED	

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plant	location	page	page designation	date	designer	
=61.L1	+E11	3	water supply	2021-10-25	PED	
=61.L1	+E11	10	water supply I/O	2021-12-14	PED	
=61.L1	+E11	20	water supply I/O	2022-02-25	PED	
=61.L3	+E11	1	steadies lubrication	2022-06-02	PED	
=61.L3	+N1	2	level monitoring grease lubrication steadies	2022-06-02	PED	
=61.L4	+X3	10	steadies lubrication I/O	2022-06-02	PED	
=61.L5	+E11	10	scanning device I/O	2021-08-31	PED	
=61.L6	+E11	1	balancing device	2022-06-02	PED	
=61.L11	+E11	1	jib crane	2022-06-02	PED	
=61.L14	+E11	1	oil separator	2021-12-14	PED	
=71.M1	+E11	1	overview PC	2021-10-29	PED	
=71.M1	+E11	2	overview control panel +P1	2022-06-02	PED	
=71.M1	+E11	4	overview USB-extension	2021-10-15	PED	
=71.M1	+E11	9	mounting rack topologie	2022-01-27	PED	
=71.M1	+E11	10	overview field bus coupler	2022-06-02	PED	
=71.M1	+E13	11	voltage supply	2022-03-16	PED	
=71.M1	+E11	12	voltage supply	2022-06-02	PED	
=71.M1	+E11	13	main control panel on floor	2022-06-02	PED	
=71.M1	+E11	15	overview Ethernet Switch	2022-05-30	PED	
=71.M1	+E11	20	EtherCAT interfaces	2022-06-02	PED	
=71.M1	+E11	22	ethernet interfaces	2022-05-30	PED	
=71.M1	+E13	24	USB interfaces	2022-06-02	PED	
=71.M1	+E11	40	control panels - software variables	2022-06-03	PED	
=71.M1	+E11	41	control panel - overview of the cabling	2022-06-02	PED	
=71.M1	+E11	50	assembly bus coupler control cabinet +E1	2021-10-14	PED	
=71.M1	+E11	51	assembly bus coupler control cabinet +E1	2021-10-25	PED	
=71.M1	+E11	52	assembly bus coupler control cabinet +E1	2021-05-18	PED	
=71.M1	+E11	53	assembly bus coupler control cabinet +E1	2021-10-14	PED	
=71.M1	+E11	60	supply Beckhoff modules X50	2021-12-14	PED	
=71.M1	+E11	61	supply Beckhoff modules X50	2021-12-14	PED	
=71.M1	+E11	70	digital input terminals control cabinet +E1	2021-12-01	PED	
=71.M1	+E11	80	digital output terminals control cabinet +E1 unswitched	2022-06-02	PED	
=71.M1	+E13	200	assembly bus coupler control cabinet +E1	2021-06-22	PED	

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=71.M1	+E13	201	assembly bus coupler control cabinet +E1	2021-10-27	PED	
=71.M1	+E13	202	assembly bus coupler control cabinet +E1	2021-05-18	PED	
=71.M1	+E13	210	supply Beckhoff modules X200	2021-12-14	PED	
=71.M1	+N1	350	assembly bus coupler headstock +N1	2022-06-02	PED	
=71.M1	+N1	351	assembly bus coupler headstock +N1	2022-05-04	PED	
=71.M1	+S1	360	supply Beckhoff modules X350	2022-06-02	PED	
=71.M1	+L1	500	assembly bus coupler carriage terminal box +L1	2021-10-26	PED	
=71.M1	+L1	501	assembly bus coupler carriage terminal box +L1	2022-04-14	PED	
=71.M1	+L1	510	supply Beckhoff modules X500	2022-06-02	PED	
=71.M1	+U2	600	assembly bus coupler saddle +U2	2021-05-18	PED	
=71.M1	+U2	601	assembly bus coupler saddle +U2	2021-10-21	PED	
=71.M1	+U2	610	supply Beckhoff modules X600	2022-06-02	PED	
=71.M1	+T2	700	assembly bus coupler tailstock +T2	2021-05-05	PED	
=71.M1	+T2	701	assembly bus coupler tailstock +T2	2021-05-05	PED	
=71.M1	+T2	710	supply Beckhoff modules X700	2021-09-02	PED	
=81.P3	+T1	1	control panel headstock	2022-06-02	PED	
=81.P3	+T1	2	control panel headstock	2022-05-21	PED	
=81.P3	+T1	10	control panel headstock	2022-06-02	PED	
=81.P9	+E11	10	balancing unit I/O	2021-08-31	PED	
=81.P9	+E11	20	balancing unit I/O	2021-05-05	PED	
=81.P11	+L1	1	handwheel	2022-02-21	PED	
=81.P11	+L1	10	hand wheel I/O	2022-02-21	PED	
=81.P11	+L1	11	hand wheel I/O	2022-02-21	PED	
=81.P11	+L1	12	hand wheel I/O	2022-02-21	PED	
=81.P11	+L1	15	hand wheel I/O	2022-02-21	PED	
=81.P11	+L1	20	hand wheel I/O	2022-06-02	PED	
=91.S1	+Z1	1	infeed measuring gauge	2022-06-02	PED	
=91.S1	+Z1	3	earth ground measuring gauge	2022-06-02	PED	
=91.S1	+Z1	10	d.c. supply measuring gauge	2022-06-02	PED	
=91.S1	+Z1	20	emergency stop control	2022-03-04	PED	
=91.S1	+Z1	800	assembly bus coupler measuring gauge +Z1	2022-03-15	PED	
=91.S1	+Z1	801	assembly bus coupler measuring gauge +Z1	2021-10-11	PED	
=91.S1	+Z1	810	supply Beckhoff modules X800	2022-06-02	PED	

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=91.S2	+Z1	1	crack detection unit EDDYCHEK MCP16	2021-10-12	PED	
=91.S2	+Z1	2	crack detection unit EDDYCHEK MCP16	2022-06-02	PED	
=91.S3	+Z2	1	USONIC assembly sensors	2021-10-14	PED	
=91.S3	+Z2	2	USONIC Sensors	2022-06-02	PED	
=91.S3	+Z2	3	USONIC Sensors	2022-06-02	PED	
=91.S3	+Z2	4	control USONIC	2022-06-02	PED	
=91.S3	+E13	5	USONIC water supply	2022-06-02	PED	
=91.S3	+Z2	7	power supply USONIC	2022-06-02	PED	
=91.S3	+Z2	10	assembly bus coupler Ultrasonic +Z2	2021-10-25	PED	
=91.S3	+Z2	15	supply Beckhoff modules X10	2022-06-02	PED	
=91.S3	+E11	20	USONIC I/O	2022-06-02	PED	
=91.S3	+Z2	21	USONIC I/O	2022-06-02	PED	
=91.S3	+E11	30	USONIC I/O	2022-06-02	PED	
=91.S5	+E13	1	roll surface inspection system RSIS overview PC	2021-10-13	PED	
=91.S5	+P12	2	overview panel +P12	2022-06-02	PED	
=91.S5	+E11	4	overview USB-extension	2021-10-12	PED	
=91.S5	+E13	5	RSIS power supply PC	2022-06-02	PED	
=91.S5	+E13	6	roll surface inspection system RSIS	2022-06-02	PED	
=91.S5	+E13	7	roll surface inspection system RSIS	2022-02-23	PED	
=91.S5	+Z13	8	power supply roll surface inspection system RSIS 2.0	2022-06-02	PED	
=91.S5	+Z13	9	power supply roll surface inspection system RSIS 2.0	2022-04-12	PED	
=91.S5	+Z13	10	power supply roll surface inspection system RSIS 2.0	2022-06-02	PED	
=91.S5	+Z1	11	power supply roll surface inspection system RSIS 2.0	2022-06-02	PED	
=91.S5	+Z1	12	RSIS roll surface inspection system I/O	2021-12-14	PED	
=91.S5	+Z1	13	RSIS roll surface inspection system I/O	2022-06-02	PED	
=91.S5	+Z1	14	assembly bus coupler RSIS +Z1	2022-06-02	PED	
=91.S5	+Z1	15	supply Beckhoff modules X15	2022-06-02	PED	
=91.S7	+E11	1	optoserv overview pc	2021-10-13	PED	
=91.S7	+E11	2	overview USB-extension	2021-10-13	PED	
=91.S7	+E11	3	OptoSurf USB interfaces	2022-06-02	PED	
=91.S7	+E11	4	voltage supply	2022-06-02	PED	
=91.S7	+Z1	5	RSLD/RSIS adjustment	2022-06-02	PED	
=91.S7	+Z1	11	RSLD/RSIS adjustment I/O	2022-06-02	PED	

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=91.S7	+Z1	20	RSLD/RSIS adjustment I/O	2022-06-02	PED	
=91.S8	+E2	1	overview PC vibration measurement	2021-10-14	PED	
=91.S8	+E2	2	PC vibration mesurement	2021-10-26	PED	
=91.S8	+E2	3	PC vibration mesurement	2022-06-02	PED	
=91.S8	+E2	4	vibration measurement	2022-04-25	PED	
=91.S9	+E3	1	IBA interface	2022-06-02	PED	
=91.S9	+E3	2	iba	2022-06-02	PED	
=99.END	+E11	1	potential end	2022-06-02	PED	
=XK1	+E2	1	terminal diagram +E2-X1	2022-06-03	PED	
=XK1	+E3	2	terminal diagram +E3-X1	2022-06-03	PED	
=XK1	+E11	3	terminal diagram +E11-X1	2022-06-03	PED	
=XK1	+E11	4	terminal diagram +E11-X4	2022-06-03	PED	
=XK1	+E11	5	terminal diagram +E11-X9	2022-06-03	PED	
=XK1	+E11	6	terminal strip +E11-XPE	2022-06-03	PED	
=XK1	+E12	7	terminal diagram +E12-X1.1	2022-06-03	PED	
=XK1	+E13	8	terminal diagram +E13-X2	2022-06-03	PED	
=XK1	+E13	9	terminal diagram +E13-X2	2022-06-03	PED	
=XK1	+E13	10	terminal diagram +E13-X2.1	2022-06-03	PED	
=XK1	+E13	11	terminal diagram +E13-X5	2022-06-03	PED	
=XK1	+E13	12	terminal diagram +E13-X5.1	2022-06-03	PED	
=XK1	+E13	13	terminal diagram +E13-X5.1	2022-06-03	PED	
=XK1	+E13	14	terminal diagram +E13-X5.1	2022-06-03	PED	
=XK1	+E13	15	terminal diagram +E13-X5.1	2022-06-03	PED	
=XK1	+E13	16	terminal diagram +E13-X5.1	2022-06-03	PED	
=XK1	+E13	17	terminal diagram +E13-X5.1	2022-06-03	PED	
=XK1	+E13	18	terminal diagram +E13-X8	2022-06-03	PED	
=XK1	+E13	19	terminal diagram +E13-X8	2022-06-03	PED	
=XK1	+E13	20	terminal diagram +E13-X8	2022-06-03	PED	
=XK1	+L1	21	terminal strip +L1-X1	2022-06-03	PED	
=XK1	+L1	22	terminal strip +L1-X1	2022-06-03	PED	
=XK1	+L1	23	terminal strip +L1-X1	2022-06-03	PED	
=XK1	+L1	24	terminal diagram +L1-XPE	2022-06-03	PED	
=XK1	+N1	25	terminal strip +N1-X1	2022-06-03	PED	

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=XK1	+N1	26	terminal strip +N1-X1	2022-06-03	PED	
=XK1	+N1	27	terminal strip +N1-X2	2022-06-03	PED	
=XK1	+N1	29	terminal strip +N1-X3	2022-06-03	PED	
=XK1	+T2	30	terminal strip +T2-X1	2022-06-03	PED	
=XK1	+T2	31	terminal strip +T2-X1	2022-06-03	PED	
=XK1	+U2	32	terminal strip +U2-X1	2022-06-03	PED	
=XK1	+U2	33	terminal strip +U2-X1	2022-06-03	PED	
=XK1	+U2	34	terminal strip +U2-X2	2022-06-03	PED	
=XK1	+X1	35	terminal diagram +X1-A2B-X1	2022-06-03	PED	
=XK1	+X1	36	terminal diagram +X1-A2B-X2	2022-06-03	PED	
=XK1	+X1	37	terminal strip +X1-X0	2022-06-03	PED	
=XK1	+X3	38	terminal strip +X3-X1	2022-06-03	PED	
=XK1	+X12	39	terminal strip +X12-X1	2022-06-03	PED	
=XK1	+Z1	40	terminal strip +Z1-X1	2022-06-03	PED	
=XK1	+Z1	41	terminal strip +Z1-X1	2022-06-03	PED	
=XK1	+Z1	42	terminal strip +Z1-X1	2022-06-03	PED	
=XK1	+Z1	43	terminal strip +Z1-X2	2022-06-03	PED	
=XK1	+Z1	44	terminal strip +Z1-X3	2022-06-03	PED	
=XK1	+Z1	45	terminal strip +Z1-X4	2022-06-03	PED	
=XK1	+Z1	46	terminal strip +Z1-X9	2022-06-03	PED	
=XK1	+Z2	47	terminal strip +Z2-X1	2022-06-03	PED	
=XK1	+Z13	48	terminal strip +Z13-X1	2022-06-03	PED	
=XK1	+Z13	49	terminal strip +Z13-X1	2022-06-03	PED	
=XK1	+Z13	50	terminal strip +Z13-X61	2022-06-03	PED	
=XS1	+E2	1	connector diagram +E2-X10	2022-06-03	PED	
=XS1	+E2	2	connector diagram +E2-X11	2022-06-03	PED	
=XS1	+E3	3	connector diagram +E3-X20	2022-06-03	PED	
=XS1	+E11	4	connector diagram +E11-X10	2022-06-03	PED	
=XS1	+E11	5	connector diagram +E11-X20	2022-06-03	PED	
=XS1	+E11	6	connector diagram +E11-X40	2022-06-03	PED	
=XS1	+E11	7	connector diagram +E11-X80	2022-06-03	PED	
=XS1	+E11	8	connector diagram +E11-X85	2022-06-03	PED	
=XS1	+E11	9	connector diagram +E11-X90	2022-06-03	PED	

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=XS1	+E13	10	connector diagram +E13-X11	2022-06-03	PED	
=XS1	+E13	11	connector diagram +E13-X45	2022-06-03	PED	
=XS1	+E13	12	connector diagram +E13-X45	2022-06-03	PED	
=XS1	+E13	13	connector diagram +E13-X65	2022-06-03	PED	
=XS1	+E13	14	connector diagram +E13-X68	2022-06-03	PED	
=XS1	+E13	15	connector diagram +E13-X68	2022-06-03	PED	
=XS1	+E13	16	connector diagram +E13-X68.1	2022-06-03	PED	
=XS1	+E13	17	connector diagram +E13-X68.1	2022-06-03	PED	
=XS1	+E13	18	connector diagram +E13-X81	2022-06-03	PED	
=XS1	+E13	19	connector diagram +E13-X81	2022-06-03	PED	
=XS1	+E13	20	connector diagram +E13-X86	2022-06-03	PED	
=XS1	+E13	21	connector diagram +E13-X91	2022-06-03	PED	
=XS1	+E13	22	connector diagram +E13-X97	2022-06-03	PED	
=XS1	+P11	23	connector diagram +P11-X68	2022-06-03	PED	
=XS1	+P11	24	connector diagram +P11-X68	2022-06-03	PED	
=XS1	+L1	25	connector diagram +L1-X9	2022-06-03	PED	
=XS1	+L1	26	connector diagram +L1-X10	2022-06-03	PED	
=XS1	+L1	27	connector diagram +L1-X11	2022-06-03	PED	
=XS1	+L1	28	connector diagram +L1-X12	2022-06-03	PED	
=XS1	+L1	29	connector diagram +L1-X20	2022-06-03	PED	
=XS1	+L1	30	connector diagram +L1-X21	2022-06-03	PED	
=XS1	+L1	31	connector diagram +L1-X22	2022-06-03	PED	
=XS1	+L1	32	connector diagram +L1-X40	2022-06-03	PED	
=XS1	+L1	33	connector diagram +L1-X45	2022-06-03	PED	
=XS1	+L1	34	connector diagram +L1-X45	2022-06-03	PED	
=XS1	+L1	35	connector diagram +L1-X55	2022-06-03	PED	
=XS1	+L1	36	connector diagram +L1-X56	2022-06-03	PED	
=XS1	+L1	37	connector diagram +L1-X57	2022-06-03	PED	
=XS1	+L1	38	connector diagram +L1-X58	2022-06-03	PED	
=XS1	+L1	39	connector diagram +L1-X68	2022-06-03	PED	
=XS1	+L1	40	connector diagram +L1-X68	2022-06-03	PED	
=XS1	+N1	41	connector diagram +N1-X80	2022-06-03	PED	
=XS1	+N1	42	connector diagram +N1-X81	2022-06-03	PED	

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=XS1	+N1	43	connector diagram +N1-X81	2022-06-03	PED	
=XS1	+N1	44	connector diagram +N1-X81.1	2022-06-03	PED	
=XS1	+N1	45	connector diagram +N1-X81.2	2022-06-03	PED	
=XS1	+N1	46	connector diagram +N1-X83	2022-06-03	PED	
=XS1	+N1	47	connector diagram +N1-X84	2022-06-03	PED	
=XS1	+N1	48	connector diagram +N1-X85	2022-06-03	PED	
=XS1	+P1	49	connector diagram +P1-X65	2022-06-03	PED	
=XS1	+P1	50	connector diagram +P1-X65.1	2022-06-03	PED	
=XS1	+P1	51	connector diagram +P1-X68	2022-06-03	PED	
=XS1	+P1	52	connector diagram +P1-X68	2022-06-03	PED	
=XS1	+P1	53	connector diagram +P1-X101	2022-06-03	PED	
=XS1	+S1	54	connector diagram +S1-X9	2022-06-03	PED	
=XS1	+S1	55	connector diagram +S1-X10	2022-06-03	PED	
=XS1	+S1	56	connector diagram +S1-X11	2022-06-03	PED	
=XS1	+S1	57	connector diagram +S1-X12	2022-06-03	PED	
=XS1	+S1	58	connector diagram +S1-X20	2022-06-03	PED	
=XS1	+S1	59	connector diagram +S1-X21	2022-06-03	PED	
=XS1	+S1	60	connector diagram +S1-X22	2022-06-03	PED	
=XS1	+S1	61	connector diagram +S1-X23	2022-06-03	PED	
=XS1	+S1	62	connector diagram +S1-X31	2022-06-03	PED	
=XS1	+S1	63	connector diagram +S1-X40	2022-06-03	PED	
=XS1	+S1	64	connector diagram +S1-X45	2022-06-03	PED	
=XS1	+S1	65	connector diagram +S1-X45	2022-06-03	PED	
=XS1	+S1	66	connector diagram +S1-X50	2022-06-03	PED	
=XS1	+S1	67	connector diagram +S1-X55	2022-06-03	PED	
=XS1	+S1	68	connector diagram +S1-X56	2022-06-03	PED	
=XS1	+S1	69	connector diagram +S1-X57	2022-06-03	PED	
=XS1	+S1	70	connector diagram +S1-X58	2022-06-03	PED	
=XS1	+S1	71	connector diagram +S1-X59	2022-06-03	PED	
=XS1	+S1	72	connector diagram +S1-X65	2022-06-03	PED	
=XS1	+S1	73	connector diagram +S1-X68	2022-06-03	PED	
=XS1	+S1	74	connector diagram +S1-X68	2022-06-03	PED	
=XS1	+S1	75	connector diagram +S1-X68.1	2022-06-03	PED	

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=XS1	+S1	76	connector diagram +S1-X68.1	2022-06-03	PED	
=XS1	+S1	77	connector diagram +S1-X80	2022-06-03	PED	
=XS1	+S1	78	connector diagram +S1-X81	2022-06-03	PED	
=XS1	+S1	79	connector diagram +S1-X81	2022-06-03	PED	
=XS1	+S1	80	connector diagram +S1-X85	2022-06-03	PED	
=XS1	+S1	81	connector diagram +S1-X86	2022-06-03	PED	
=XS1	+T1	82	connector diagram +T1-X15	2022-06-03	PED	
=XS1	+T1	83	connector diagram +T1-X23	2022-06-03	PED	
=XS1	+T1	84	connector diagram +T1-X82	2022-06-03	PED	
=XS1	+T1	85	connector diagram +T1-X89	2022-06-03	PED	
=XS1	+T2	86	connector diagram +T2-X10	2022-06-03	PED	
=XS1	+T2	87	connector diagram +T2-X11	2022-06-03	PED	
=XS1	+T2	88	connector diagram +T2-X85	2022-06-03	PED	
=XS1	+T2	89	connector diagram +T2-X86	2022-06-03	PED	
=XS1	+T3	90	connector diagram +T3-X81	2022-06-03	PED	
=XS1	+T3	91	connector diagram +T3-X83	2022-06-03	PED	
=XS1	+T4	92	connector diagram +T4-X81	2022-06-03	PED	
=XS1	+T4	93	connector diagram +T4-X84	2022-06-03	PED	
=XS1	+U1	94	connector diagram +U1-X9	2022-06-03	PED	
=XS1	+U1	95	connector diagram +U1-X10	2022-06-03	PED	
=XS1	+U1	96	connector diagram +U1-X11	2022-06-03	PED	
=XS1	+U1	97	connector diagram +U1-X55	2022-06-03	PED	
=XS1	+U1	98	connector diagram +U1-X56	2022-06-03	PED	
=XS1	+U1	99	connector diagram +U1-X57	2022-06-03	PED	
=XS1	+U2	100	connector diagram +U2-X12	2022-06-03	PED	
=XS1	+U2	101	connector diagram +U2-X15	2022-06-03	PED	
=XS1	+U2	102	connector diagram +U2-X22	2022-06-03	PED	
=XS1	+U2	103	connector diagram +U2-X40	2022-06-03	PED	
=XS1	+U2	104	connector diagram +U2-X45	2022-06-03	PED	
=XS1	+U2	105	connector diagram +U2-X58	2022-06-03	PED	
=XS1	+U2	106	connector diagram +U2-X68	2022-06-03	PED	
=XS1	+U2	107	connector diagram +U2-X68	2022-06-03	PED	
=XS1	+X1	108	connector diagram +X1-X1	2022-06-03	PED	

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plant	location	page	page designation	date	designer	
=XS1	+X1	109	connector diagram +X1-X90	2022-06-03	PED	
=XS1	+X1	110	connector diagram +X1-X91	2022-06-03	PED	
=XS1	+X3	111	connector diagram +X3-X80	2022-06-03	PED	
=XS1	+X3	112	connector diagram +X3-X81	2022-06-03	PED	
=XS1	+X3	113	connector diagram +X3-X82	2022-06-03	PED	
=XS1	+X12	114	connector diagram +X12-X97	2022-06-03	PED	
=XS1	+Z1	115	connector diagram +Z1-X10	2022-06-03	PED	
=XS1	+Z1	116	connector diagram +Z1-X12	2022-06-03	PED	
=XS1	+Z1	117	connector diagram +Z1-X25	2022-06-03	PED	
=XS1	+Z1	118	connector diagram +Z1-X30	2022-06-03	PED	
=XS1	+Z1	119	connector diagram +Z1-X31	2022-06-03	PED	
=XS1	+Z1	120	connector diagram +Z1-X43	2022-06-03	PED	
=XS1	+Z1	121	connector diagram +Z1-X45	2022-06-03	PED	
=XS1	+Z1	122	connector diagram +Z1-X46	2022-06-03	PED	
=XS1	+Z1	123	connector diagram +Z1-X47	2022-06-03	PED	
=XS1	+Z1	124	connector diagram +Z1-X48	2022-06-03	PED	
=XS1	+Z1	125	connector diagram +Z1-X49	2022-06-03	PED	
=XS1	+Z1	126	connector diagram +Z1-X50	2022-06-03	PED	
=XS1	+Z1	127	connector diagram +Z1-X58	2022-06-03	PED	
=XS1	+Z2	128	connector diagram +Z2-X40	2022-06-03	PED	
=XS1	+Z13	129	connector diagram +Z13-X59	2022-06-03	PED	
=XS1	+Z13	130	connector diagram +Z13-X60	2022-06-03	PED	
=2	+E11	1	single-line diagramm	2022-06-02	PED	
=2	+E11	2	single-line diagramm	2022-06-02	PED	
=2	+E11	3	single-line diagramm	2022-06-02	PED	
=2	+E11	4	single-line diagramm	2022-06-02	PED	
=2	+E11	5	single-line diagramm	2022-06-02	PED	
=2	+E11	6	single-line diagramm	2022-06-02	PED	
=2	+E11	7	single-line diagramm	2022-06-02	PED	
=2	+E11	8	single-line diagramm	2022-06-02	PED	
=2	+E11	9	single-line diagramm	2022-06-02	PED	
=2	+E11	11	single-line diagramm	2022-06-02	PED	
=2	+E11	12	single-line diagramm	2022-06-02	PED	

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plant	location	page	page designation	date	designer	
=2	+E11	13	single-line diagramm	2022-06-02	PED	
=3	+W1	1	cable overview	2022-06-03	PED	
=3	+W1	2	cable overview	2022-06-03	PED	
=3	+W1	10	cable part list	2022-06-03	PED	
=3	+W1	11	cable part list	2022-06-03	PED	
=3	+W1	12	cable part list	2022-06-03	PED	
=4	+E1	1	control cabinet overview	2022-06-03	PED	
=4	+E11	2	control cabinet +E11	2022-06-03	PED	
=4	+E12	4	control cabinet +E12	2022-06-03	PED	
=4	+E13	6	control cabinet +E13	2022-06-03	PED	
=4	+E1	7	Model view layout space	2022-06-03	PED	
=4	+E11	8	control cabinet overview 3D	2022-06-03	PED	
=4	+E11	9	control cabinet overview 3D	2022-06-03	PED	
=4		10	PC-cabinet +E2	2022-06-03	PED	
=4		11	PC-cabinet +E3	2022-06-03	PED	
=5		1	main drives	2022-06-03	PED	
=5		2	Auxiliary motors	2022-06-03	PED	

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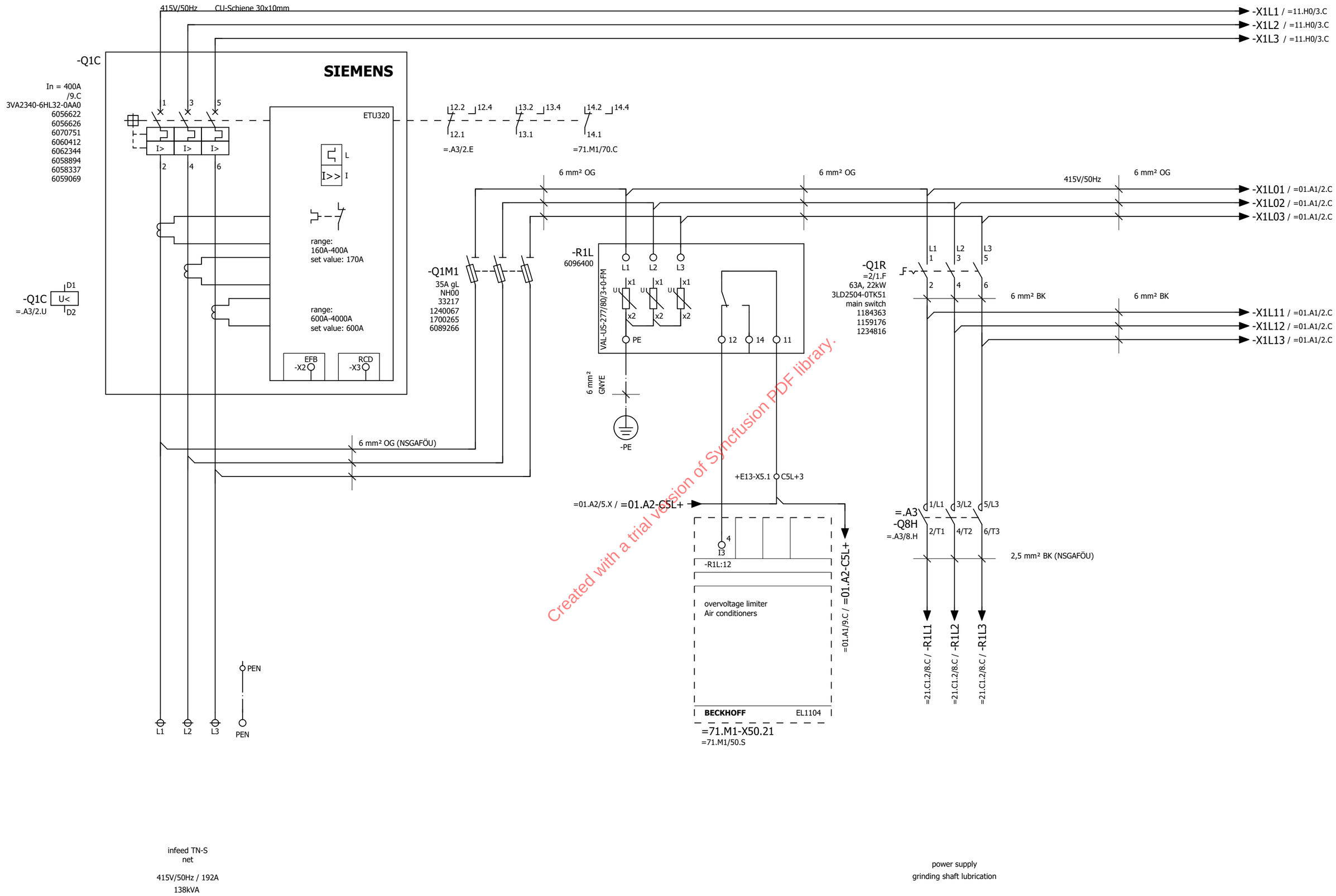

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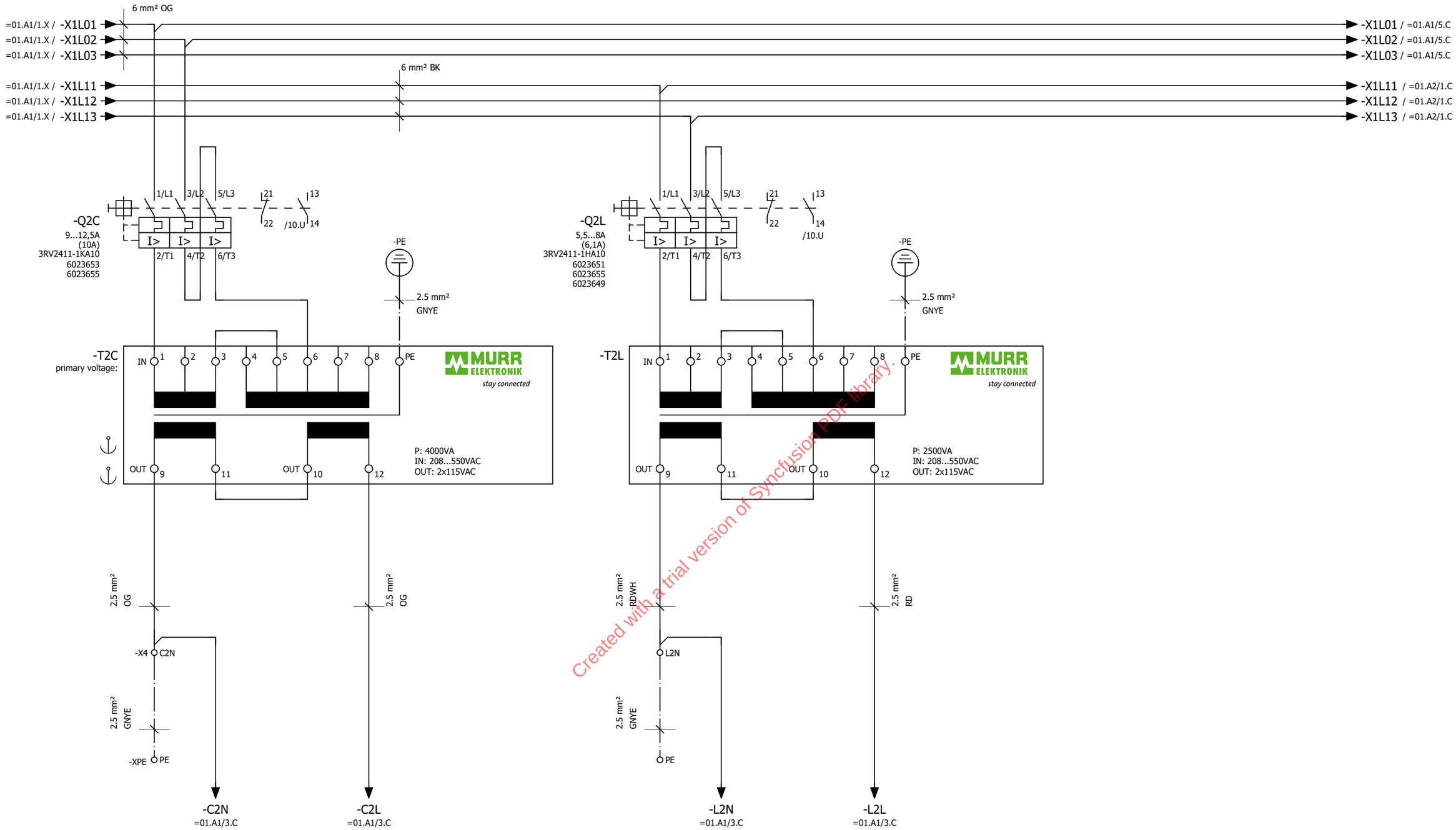

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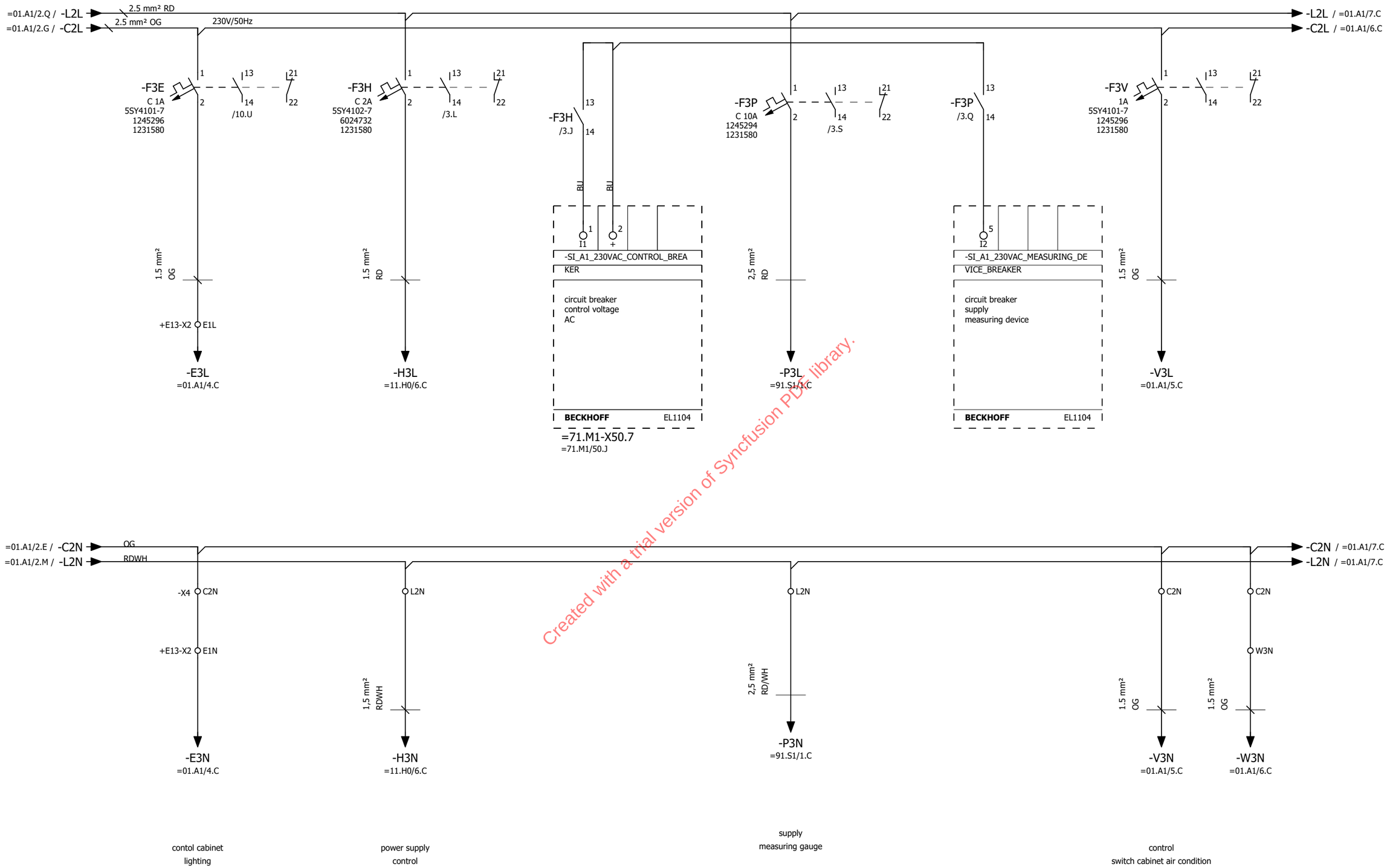
change	date	name	norm		originally.	created for.	created by.				24



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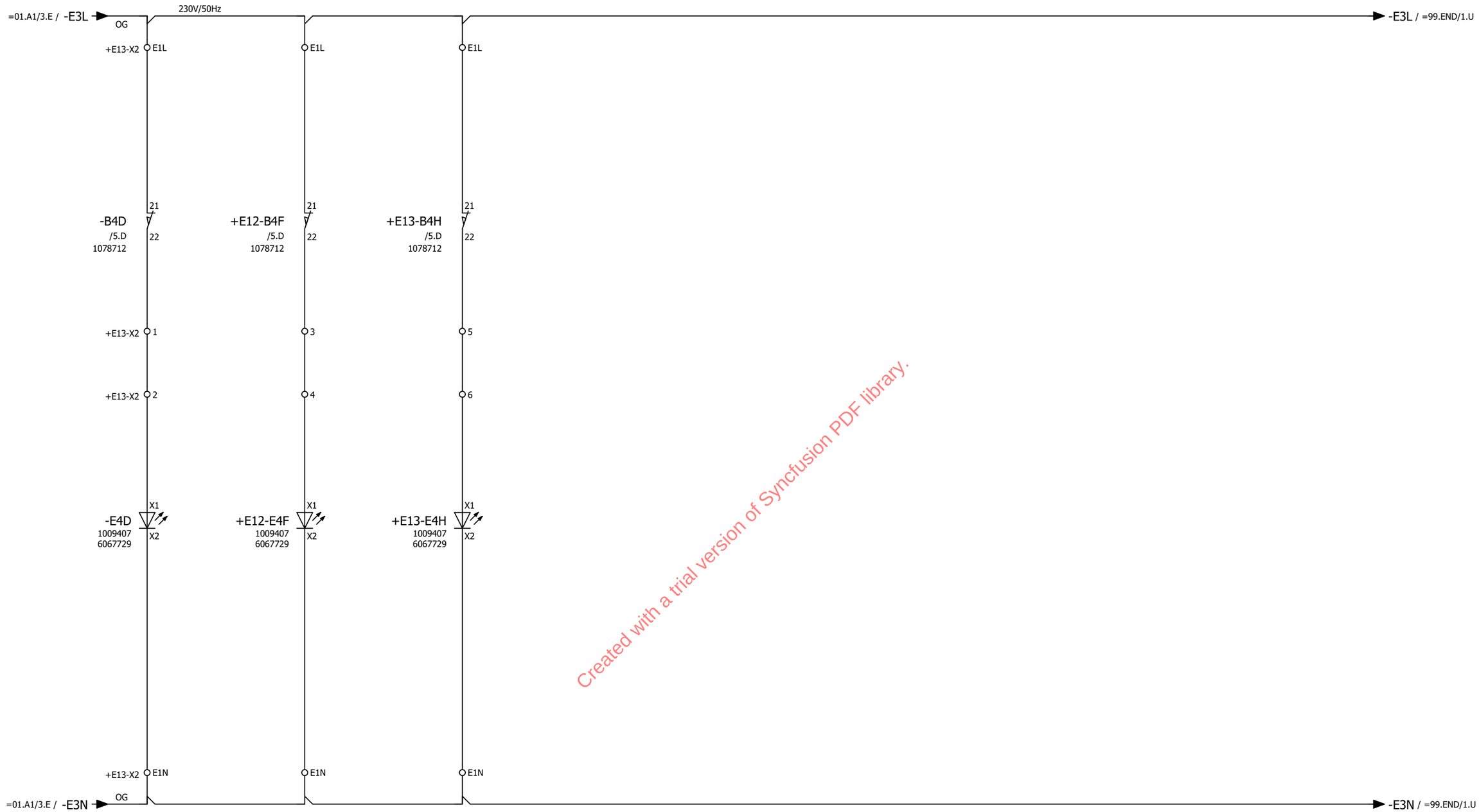

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lighting control cabinet

3 5

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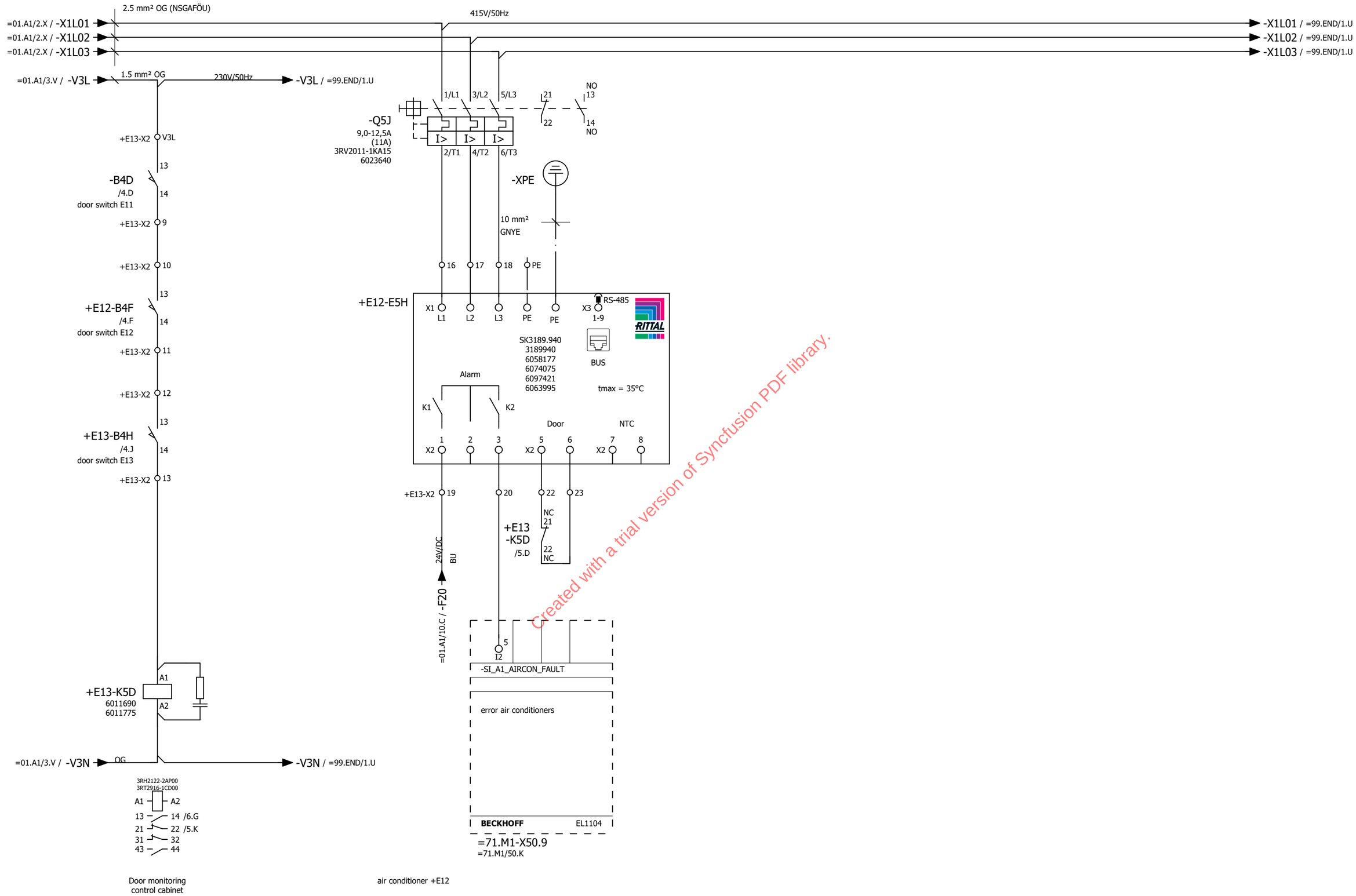

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4 6

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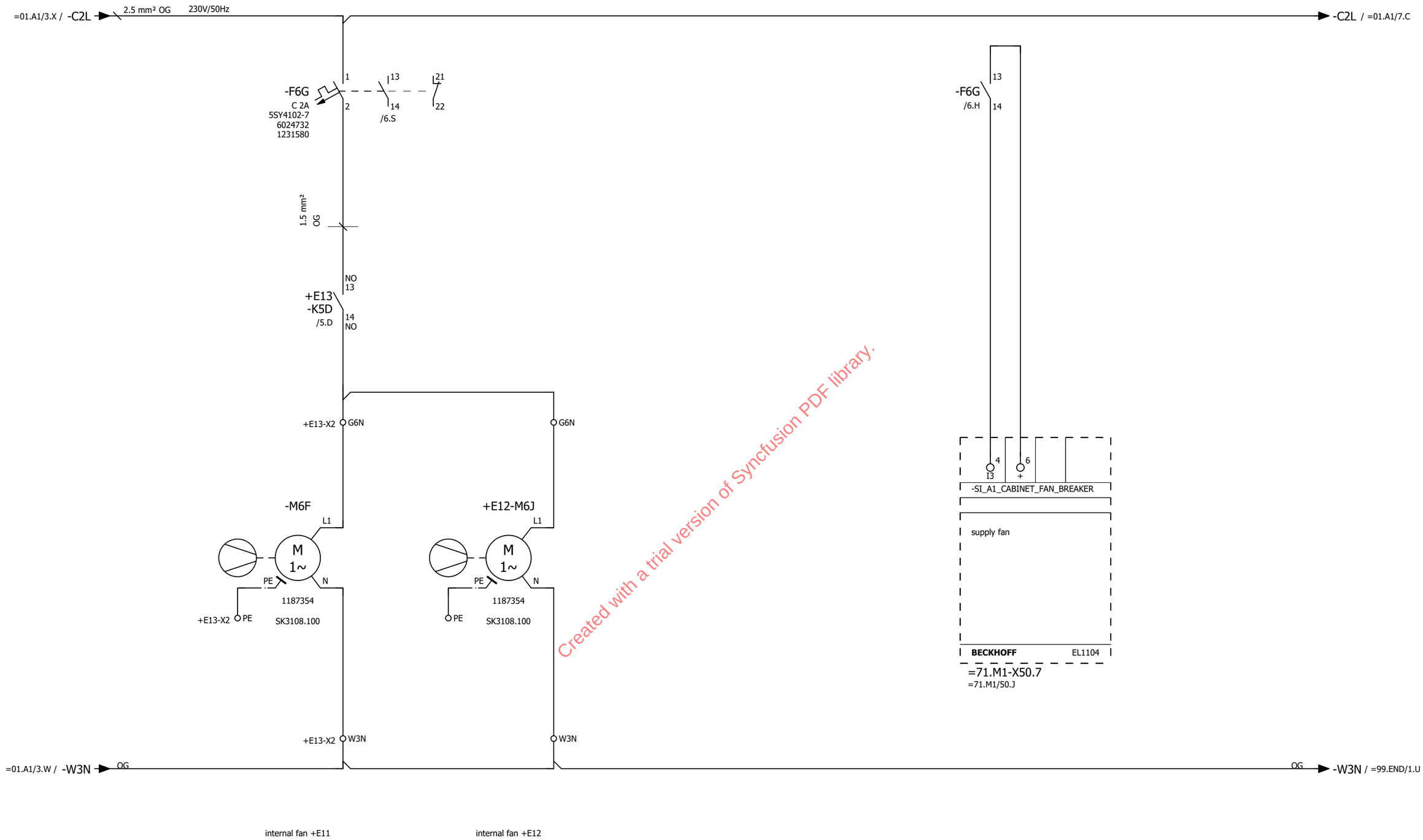

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5 7

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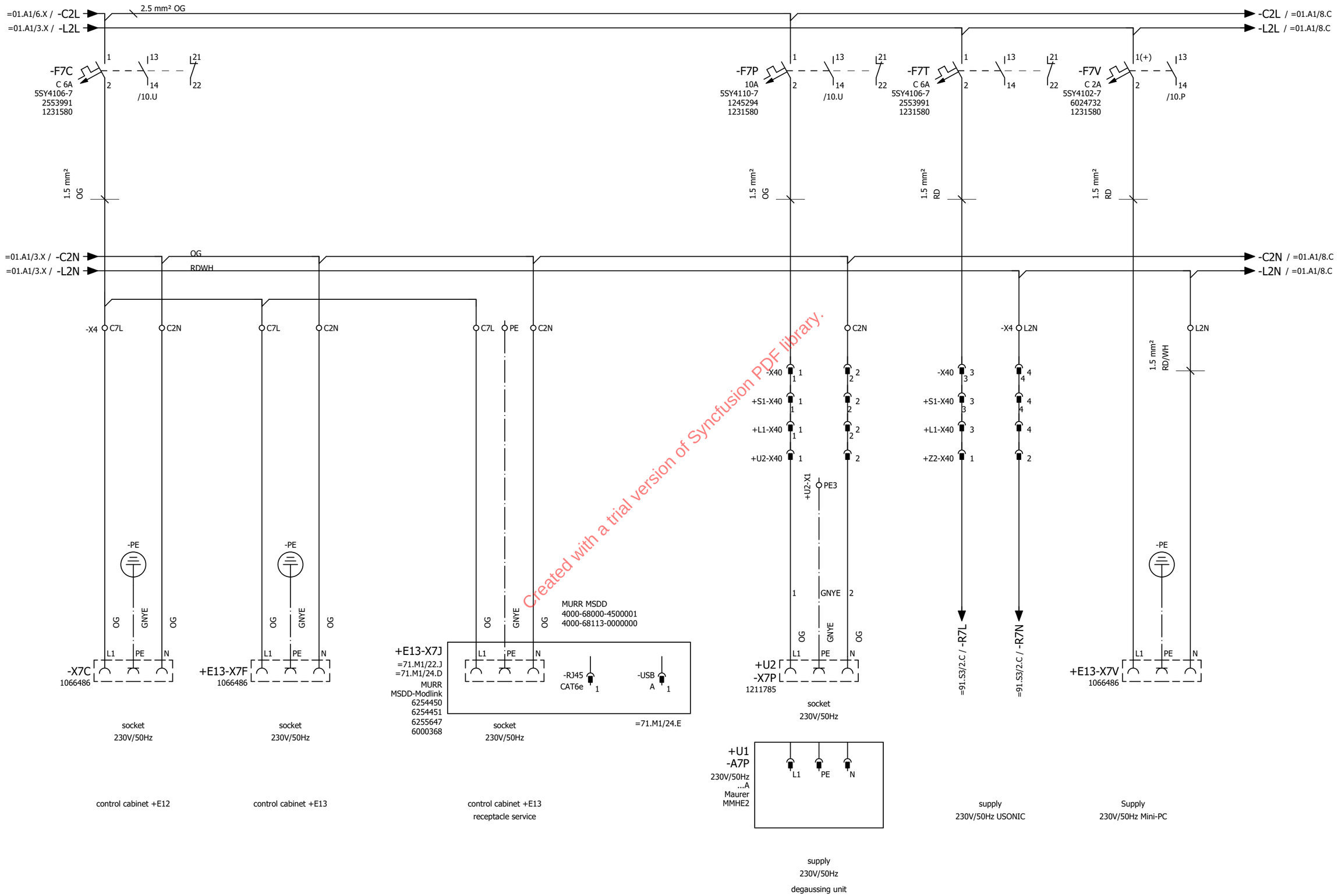

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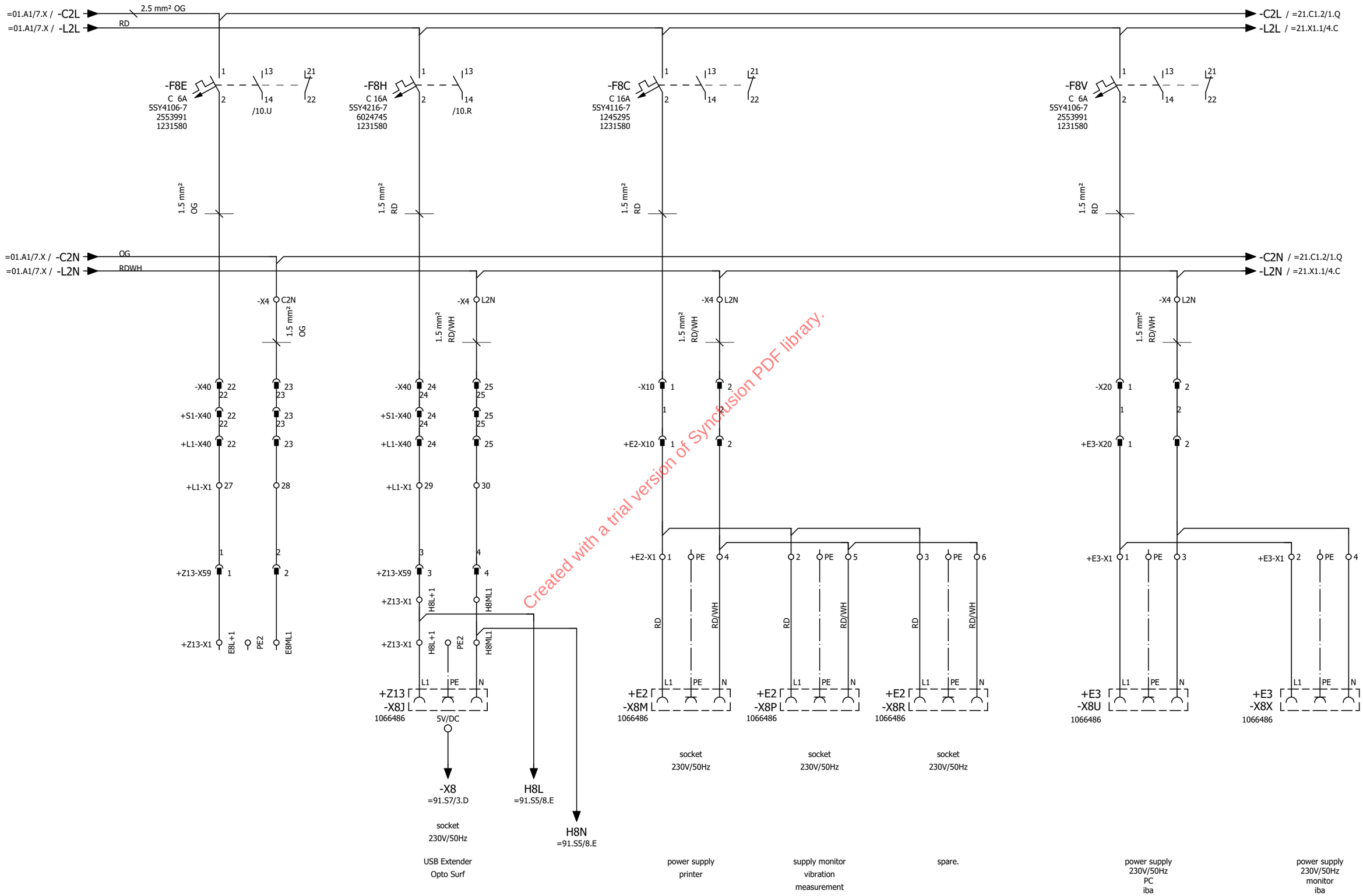

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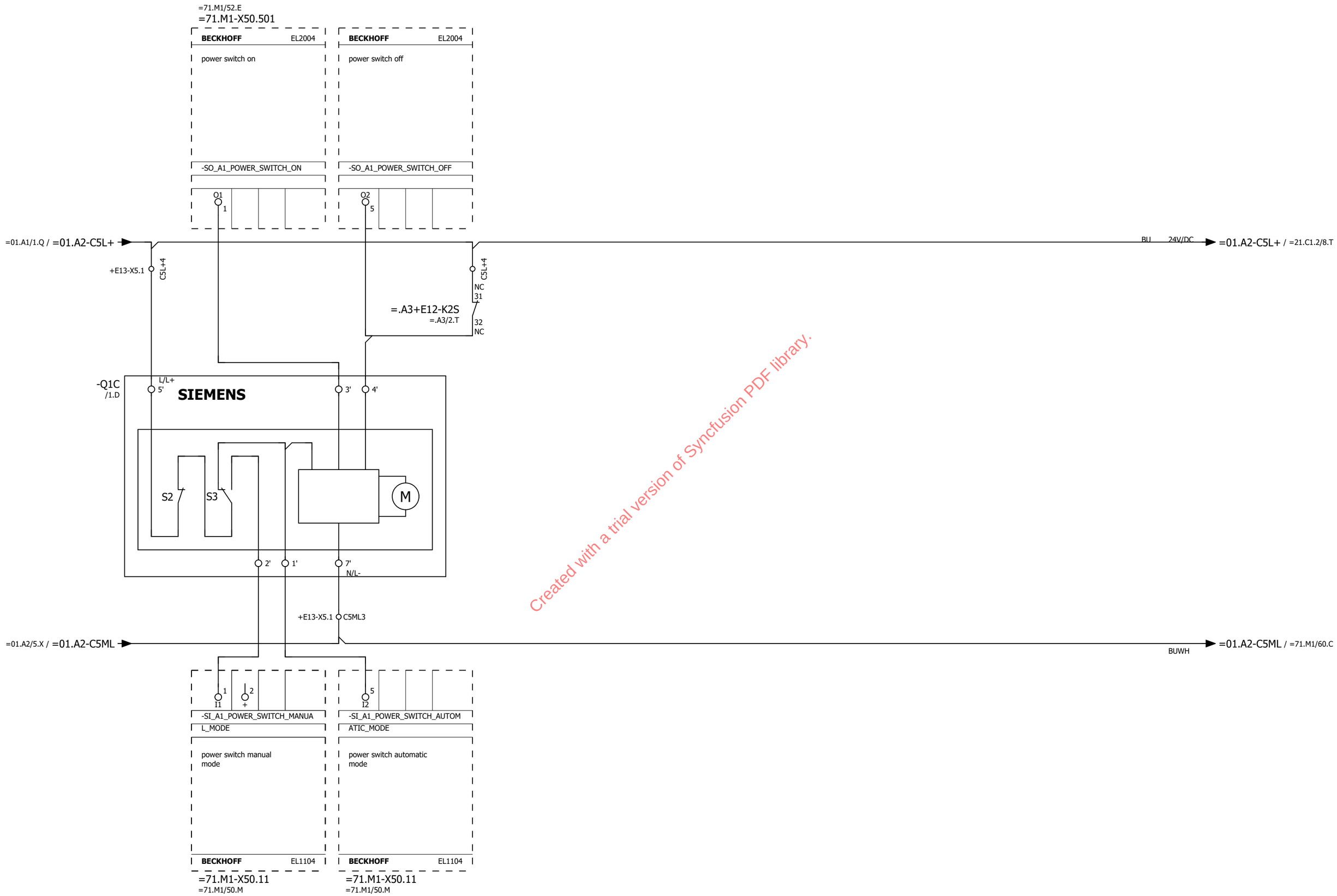
			check.								
change	date	name	norm		originally.	created for.	created by.				



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8 10

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			design.	PED						+ E11	9/36
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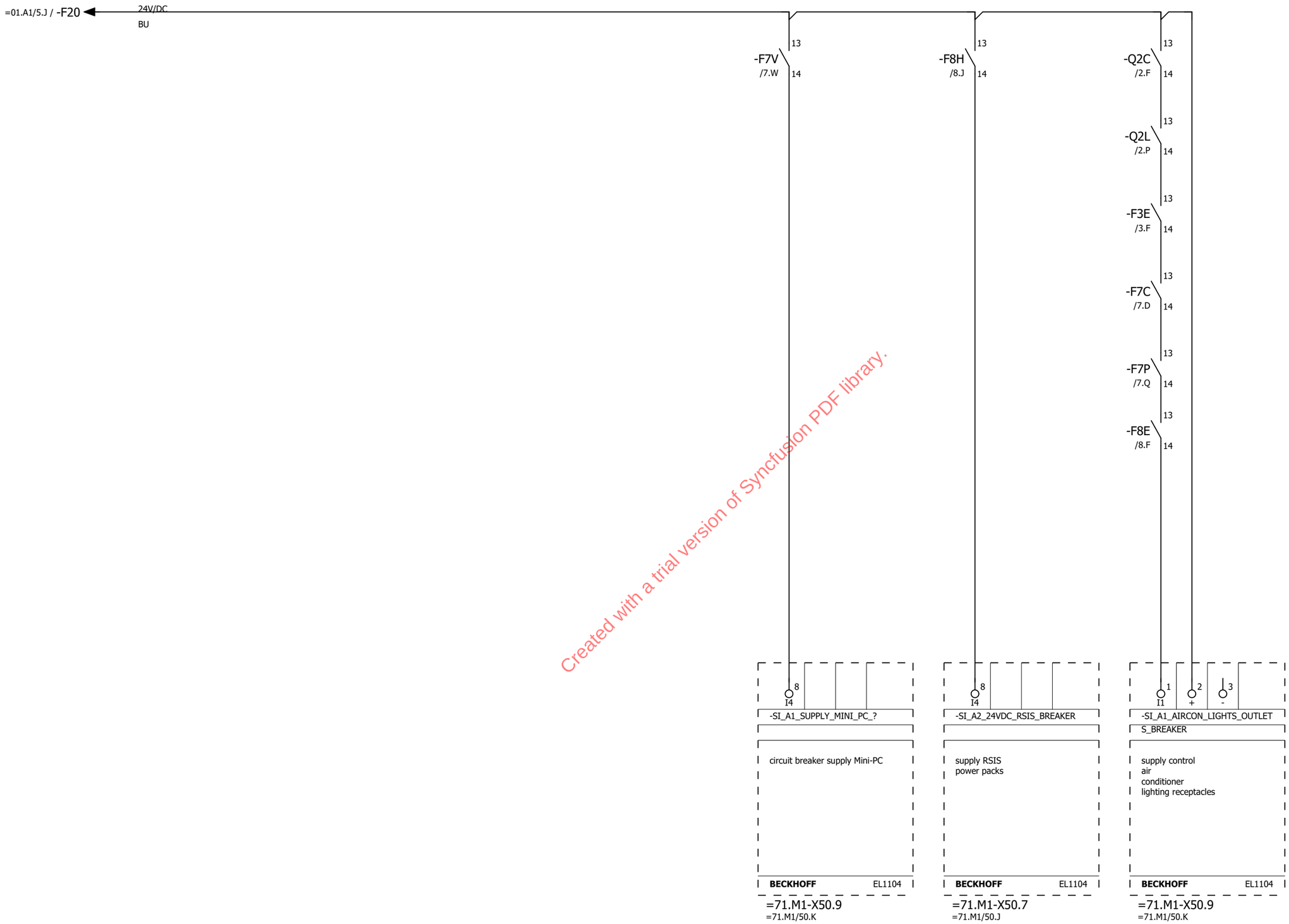
change	date	name	norm		originally.	created for.	created by.				31



Created with a trial version of Syncfusion PDF library.

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			design.	PED						+ E11	10/36
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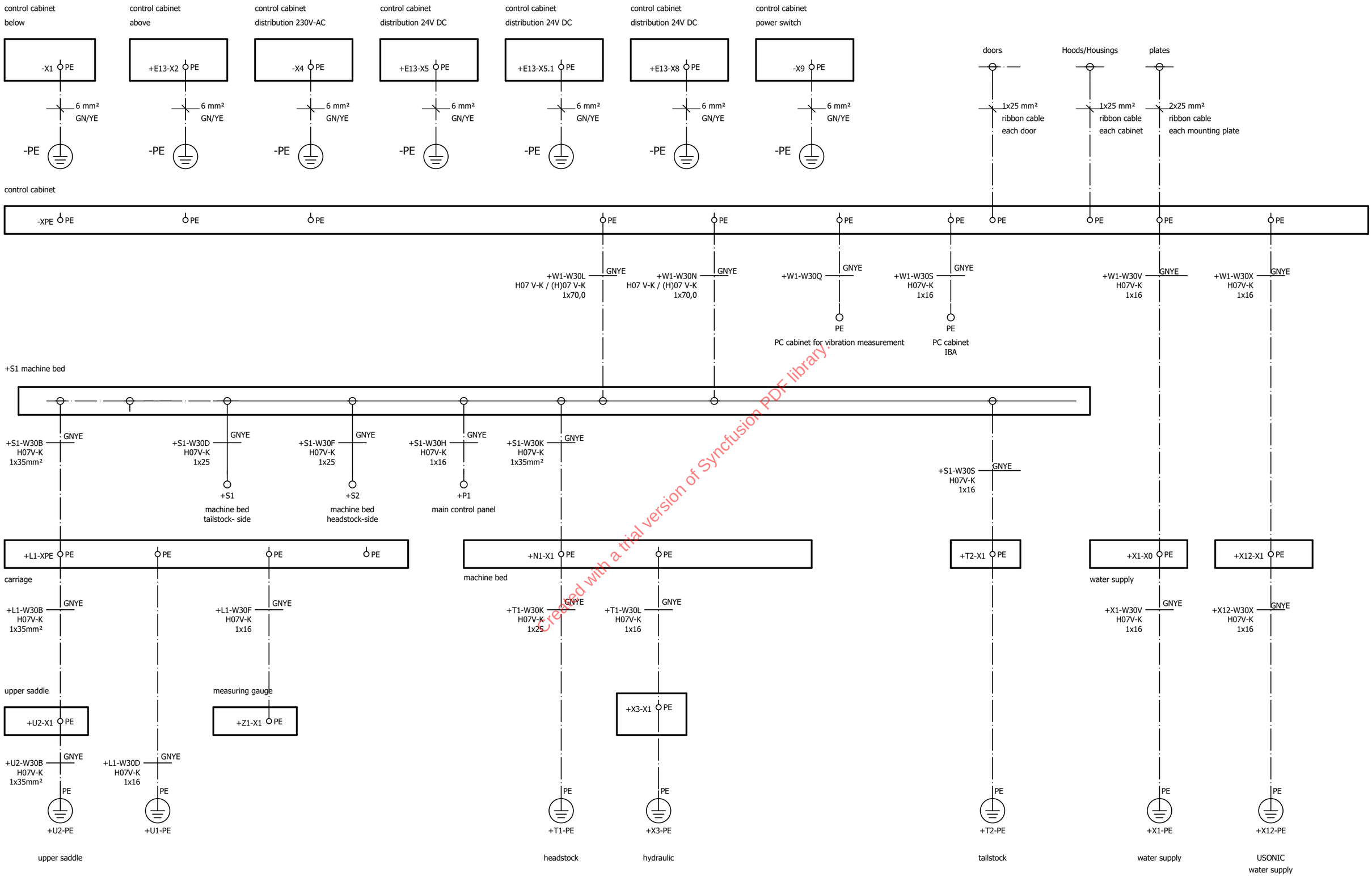

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10 31

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	earthing control cabinet/machine		= 01.A1	function page
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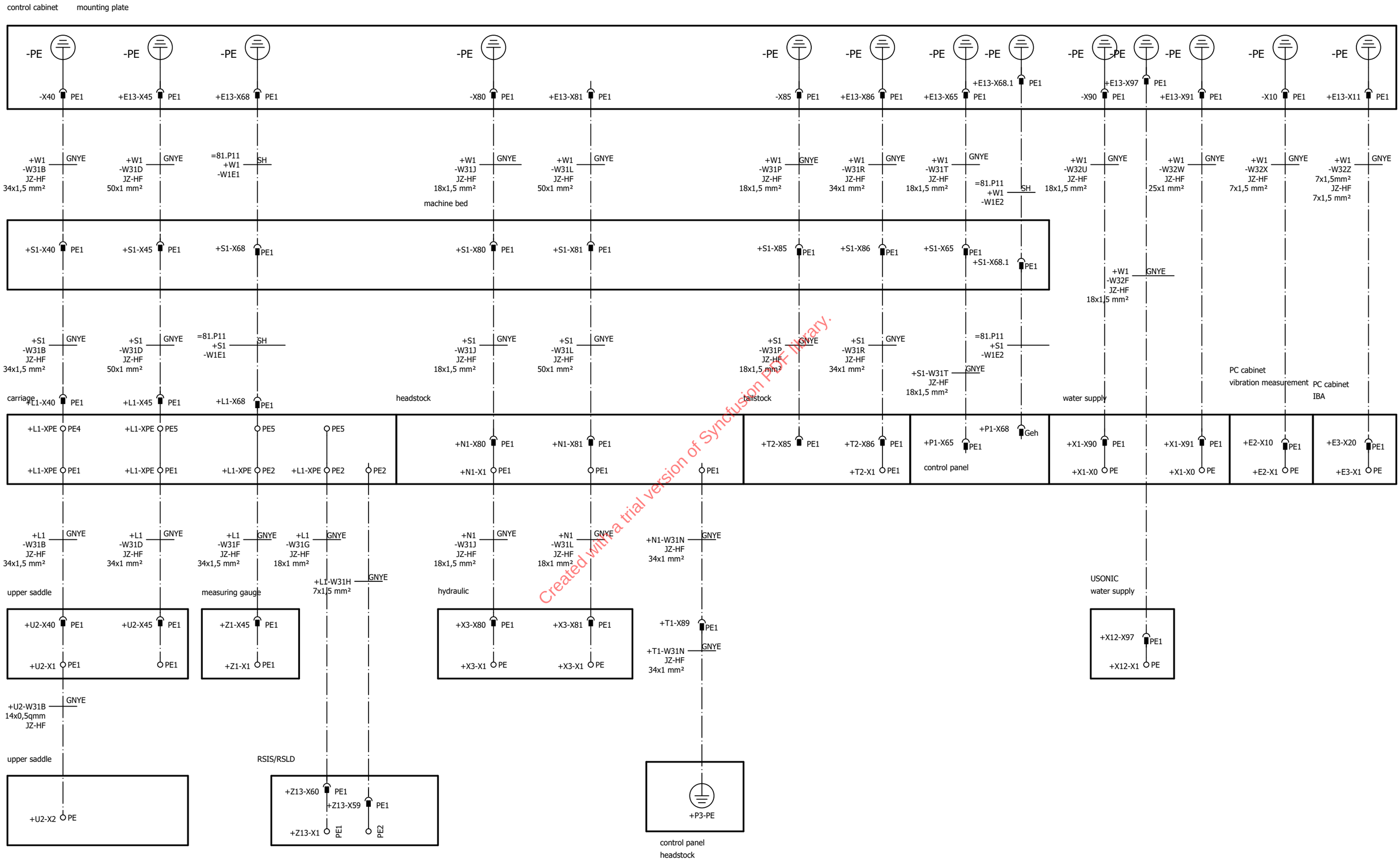
change	date	name	norm		originally.	created for.	created by.				



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			design.	PED						+ E11	31/36
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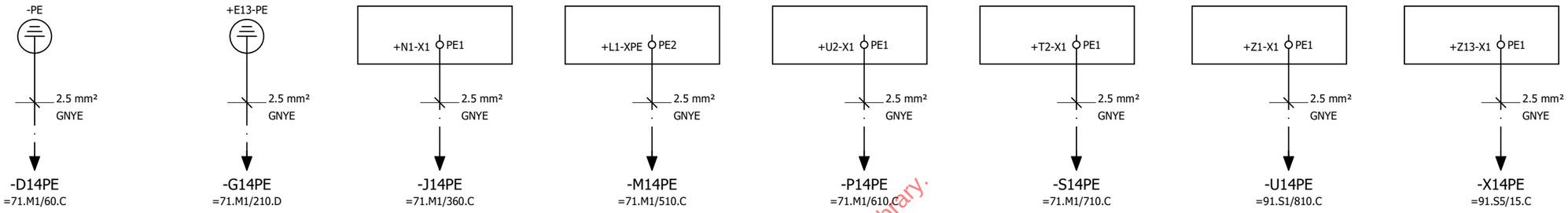
change	date	name	norm		originally.	created for.	created by.				



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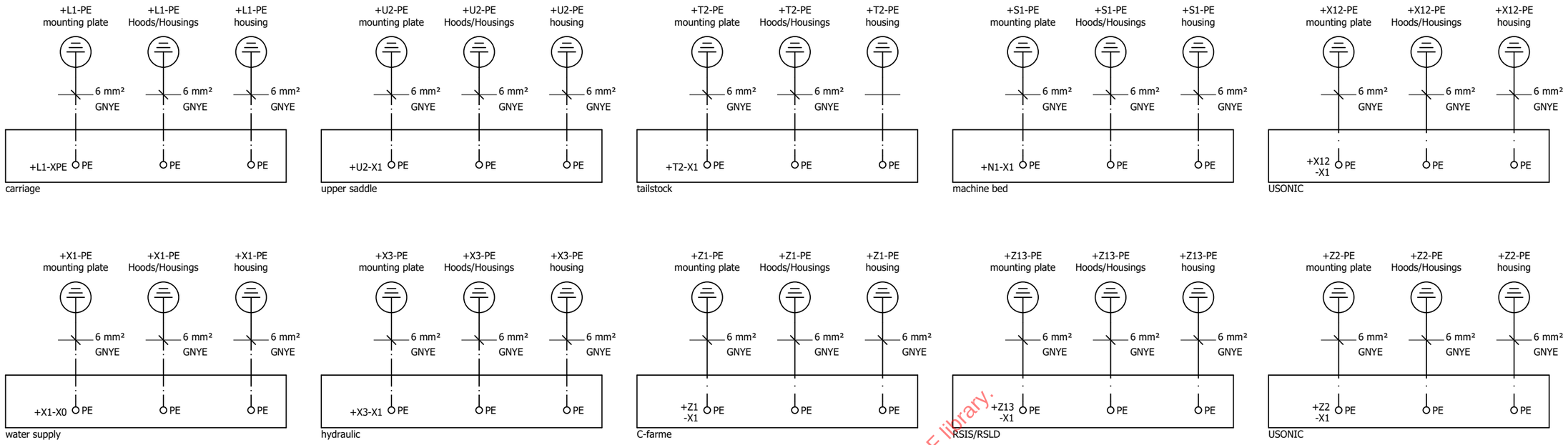
change	date	name	norm		originally.	created for.	created by.				35



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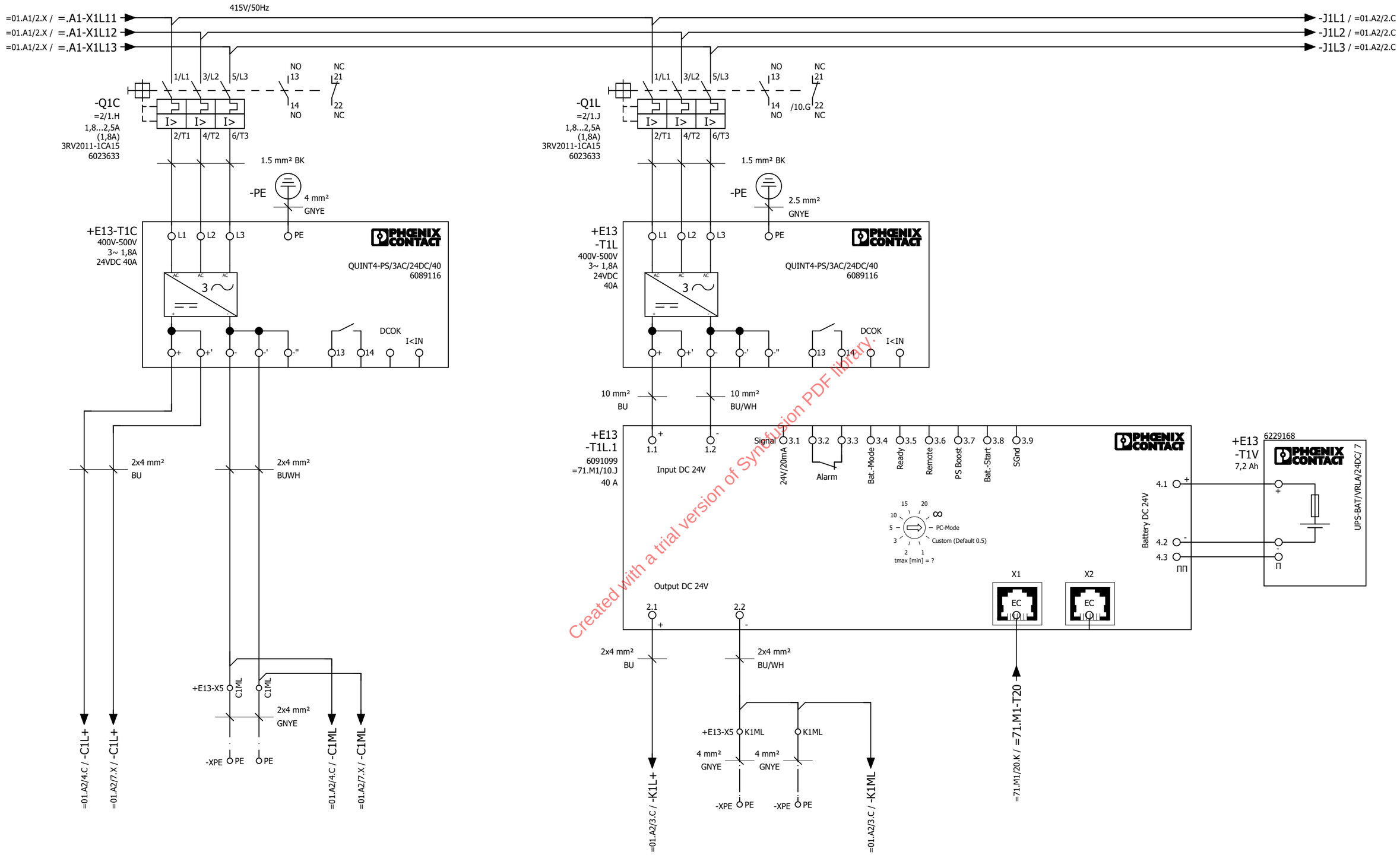

Created with a trial version of Synfusion PDF library.

=.A1/36

2

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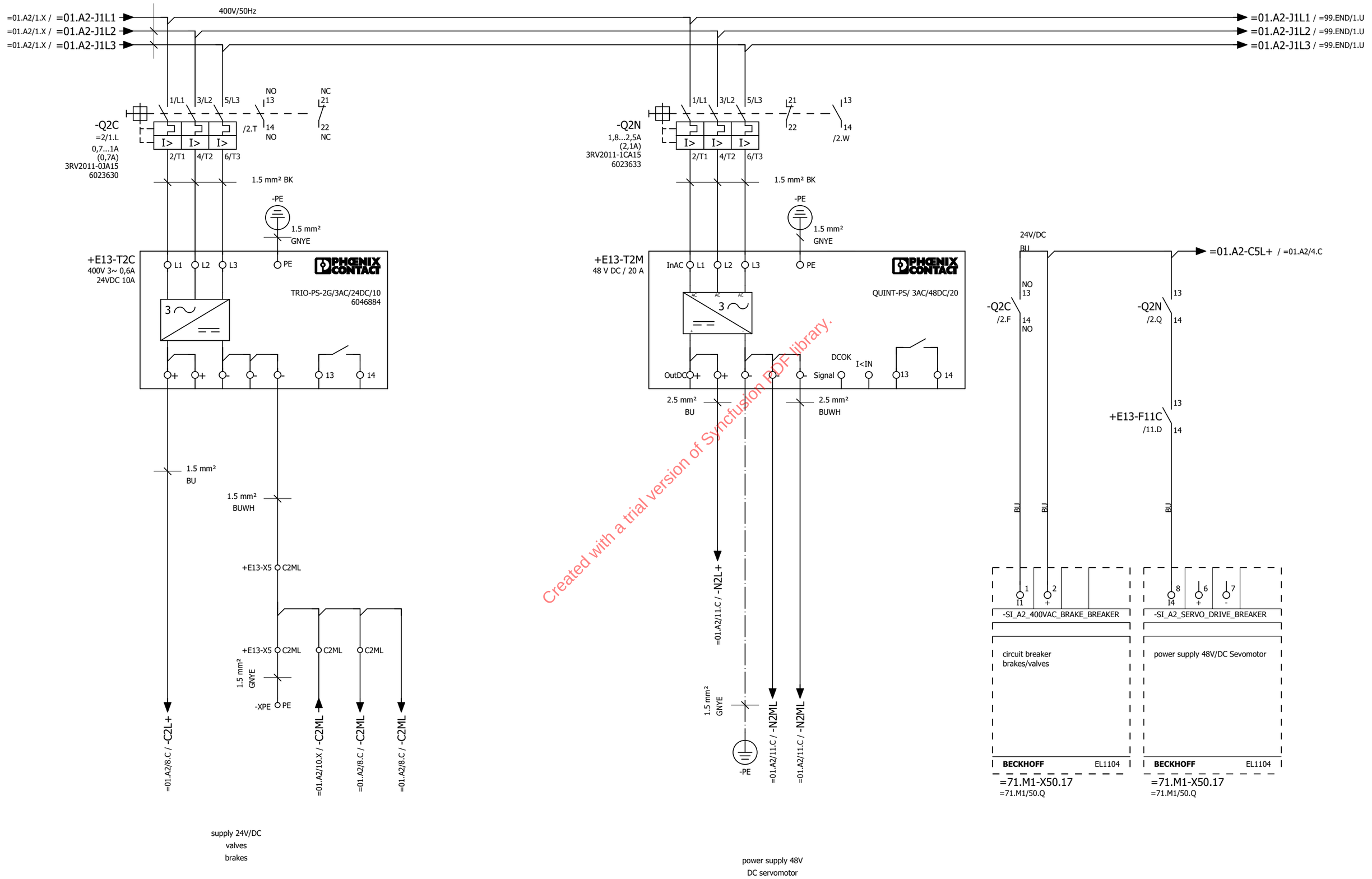

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1 3

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	Power supply 24V DC		= 01.A2 + E11	function page 2/11
			design.	PED							
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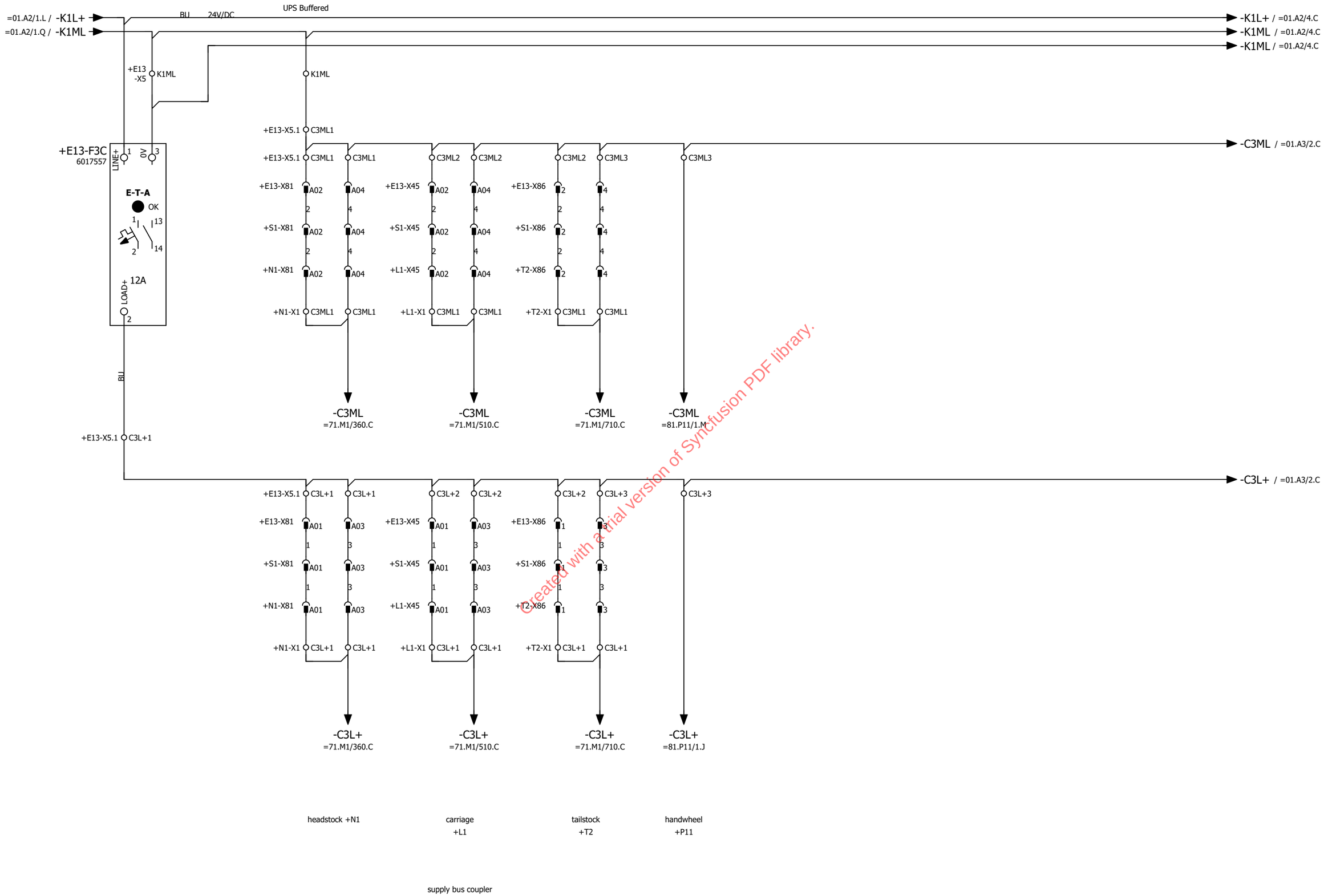
change	date	name	norm		originally.	created for.	created by.				



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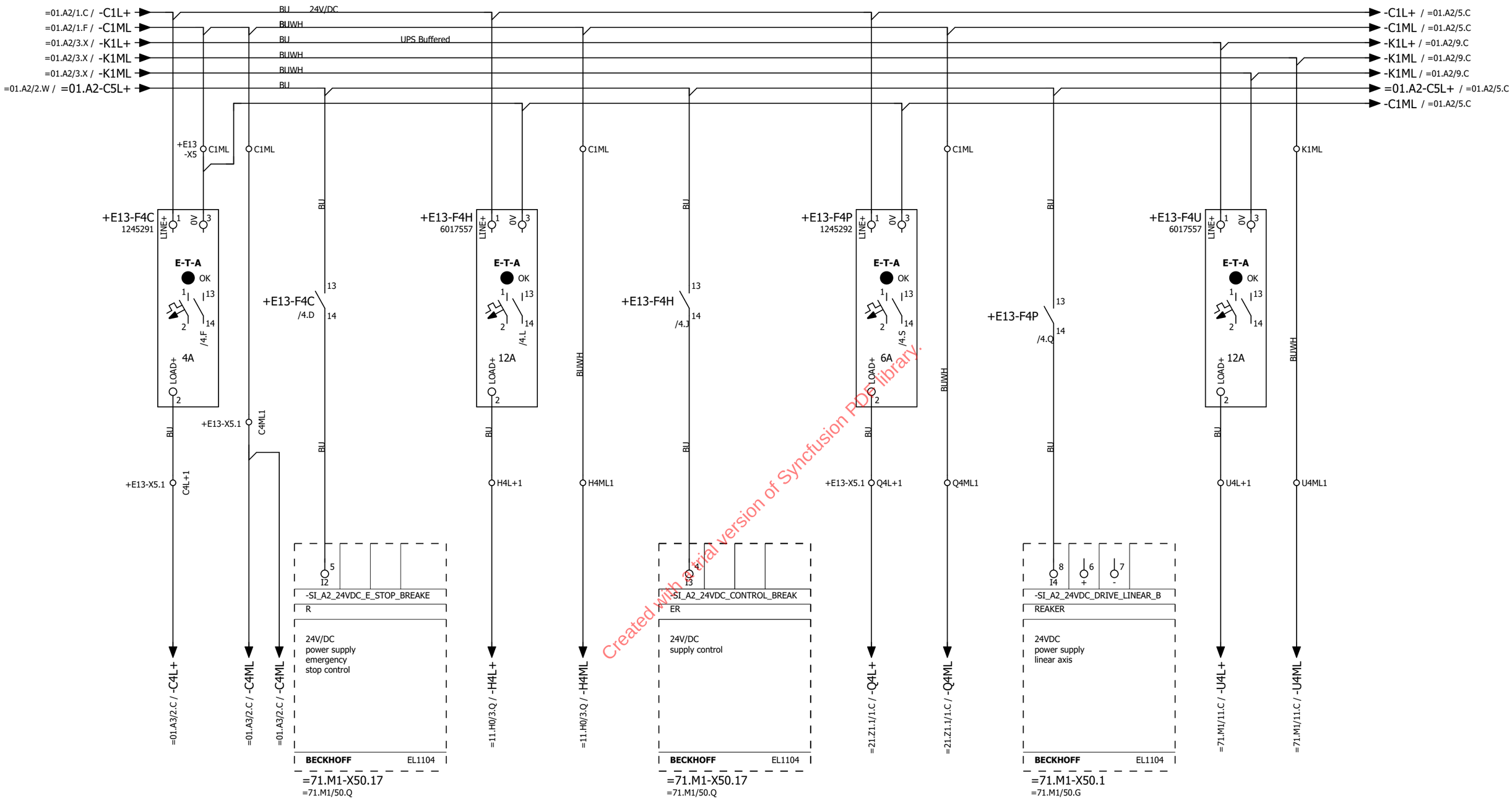
change	date	name	norm		originally.	created for.	created by.				



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3 5

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	distribution 24V DC		= 01.A2	function page
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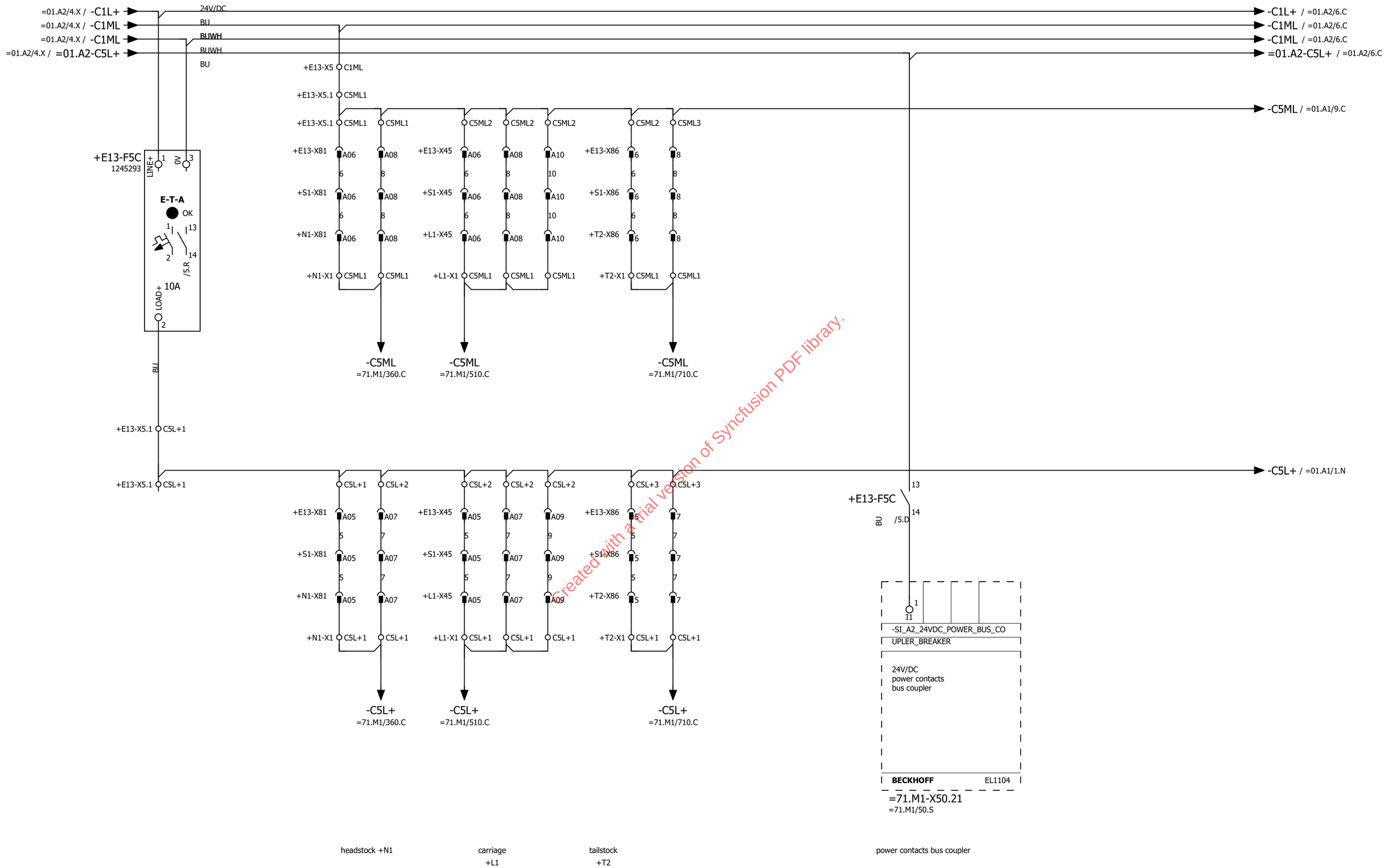

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4 6

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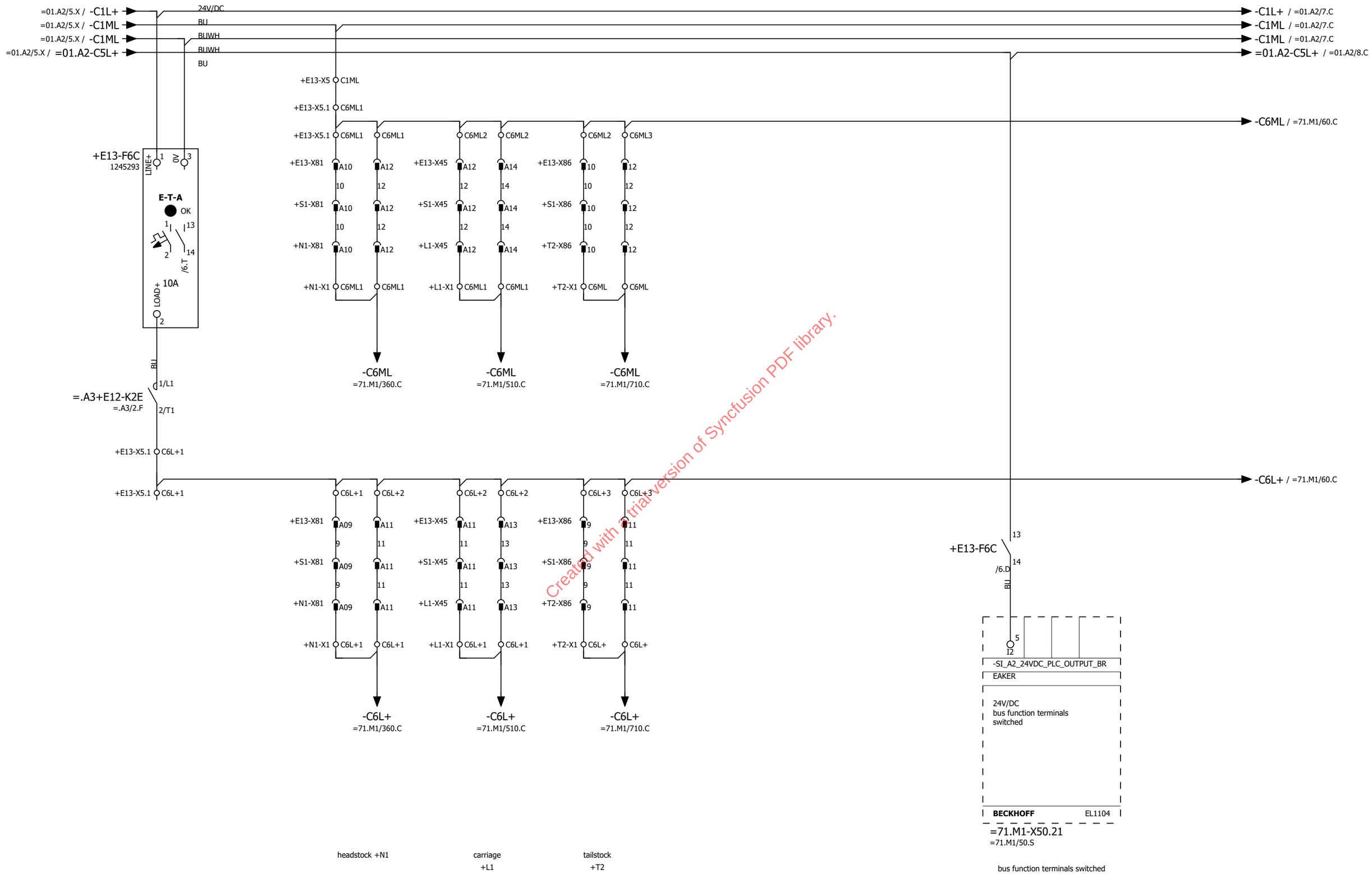

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5 7

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			design.	PED						+ E11	6/11
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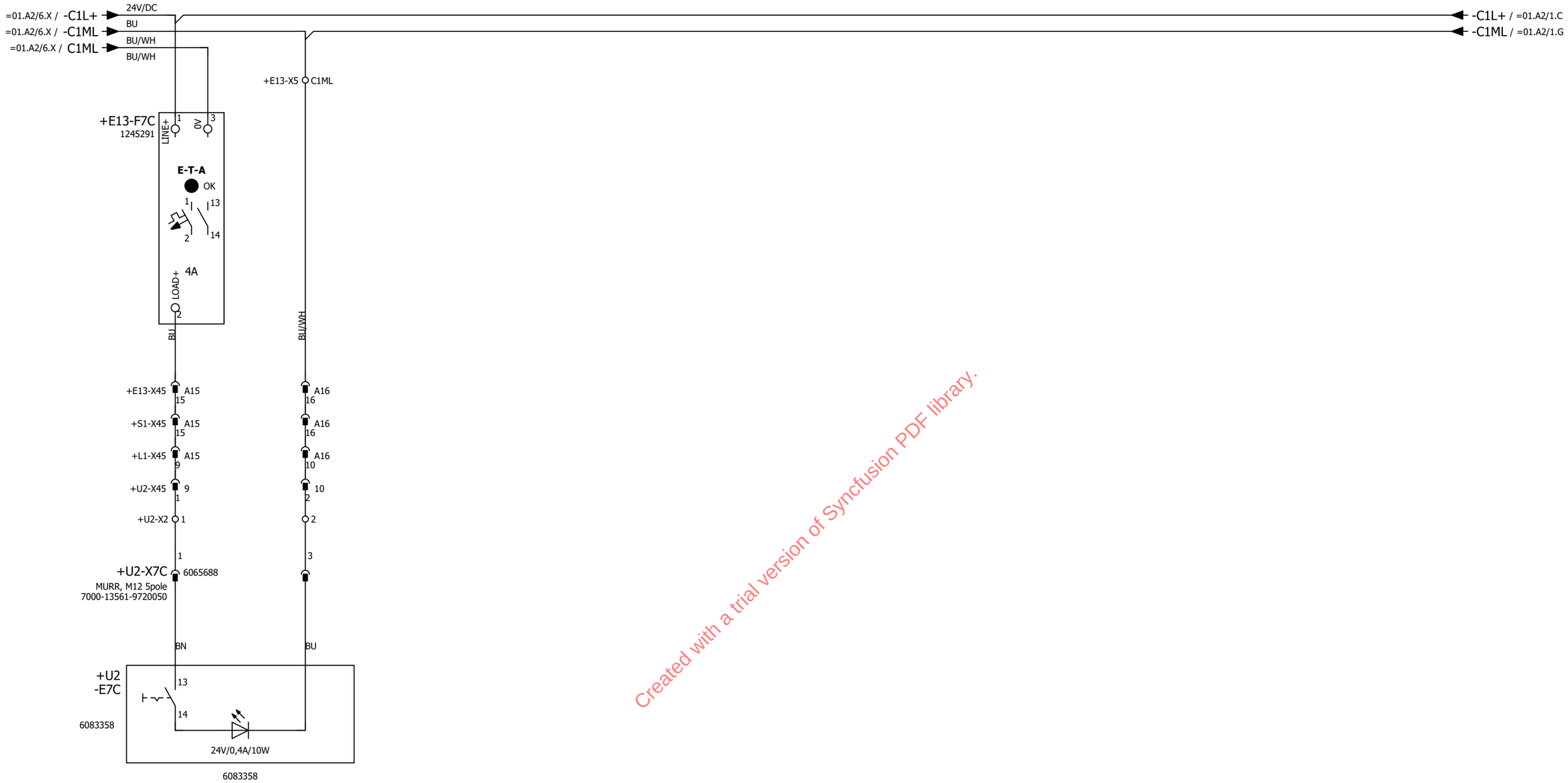

workplace luminaire

Created with a trial version of Syncfusion PDF library.

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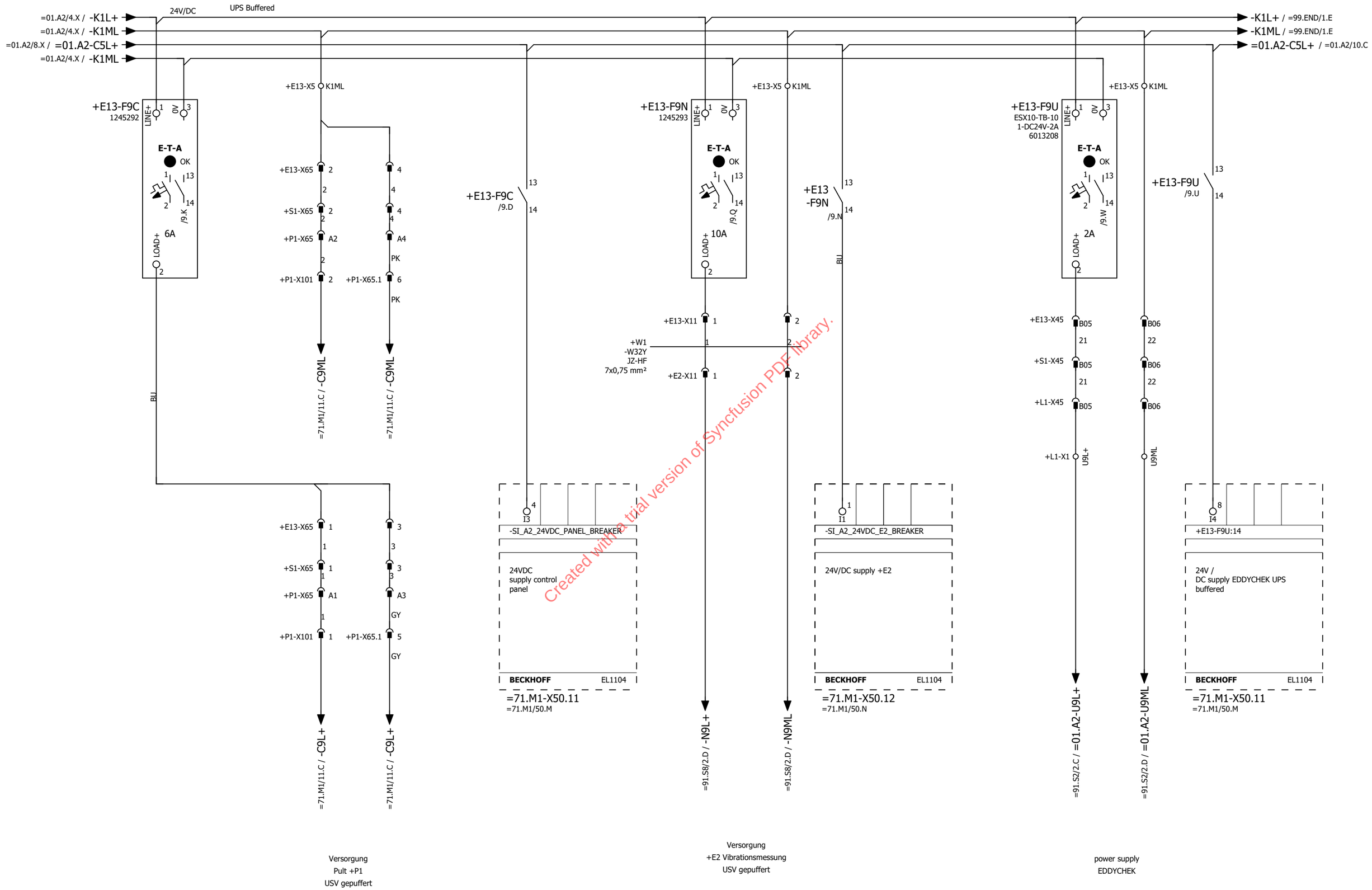

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8 10

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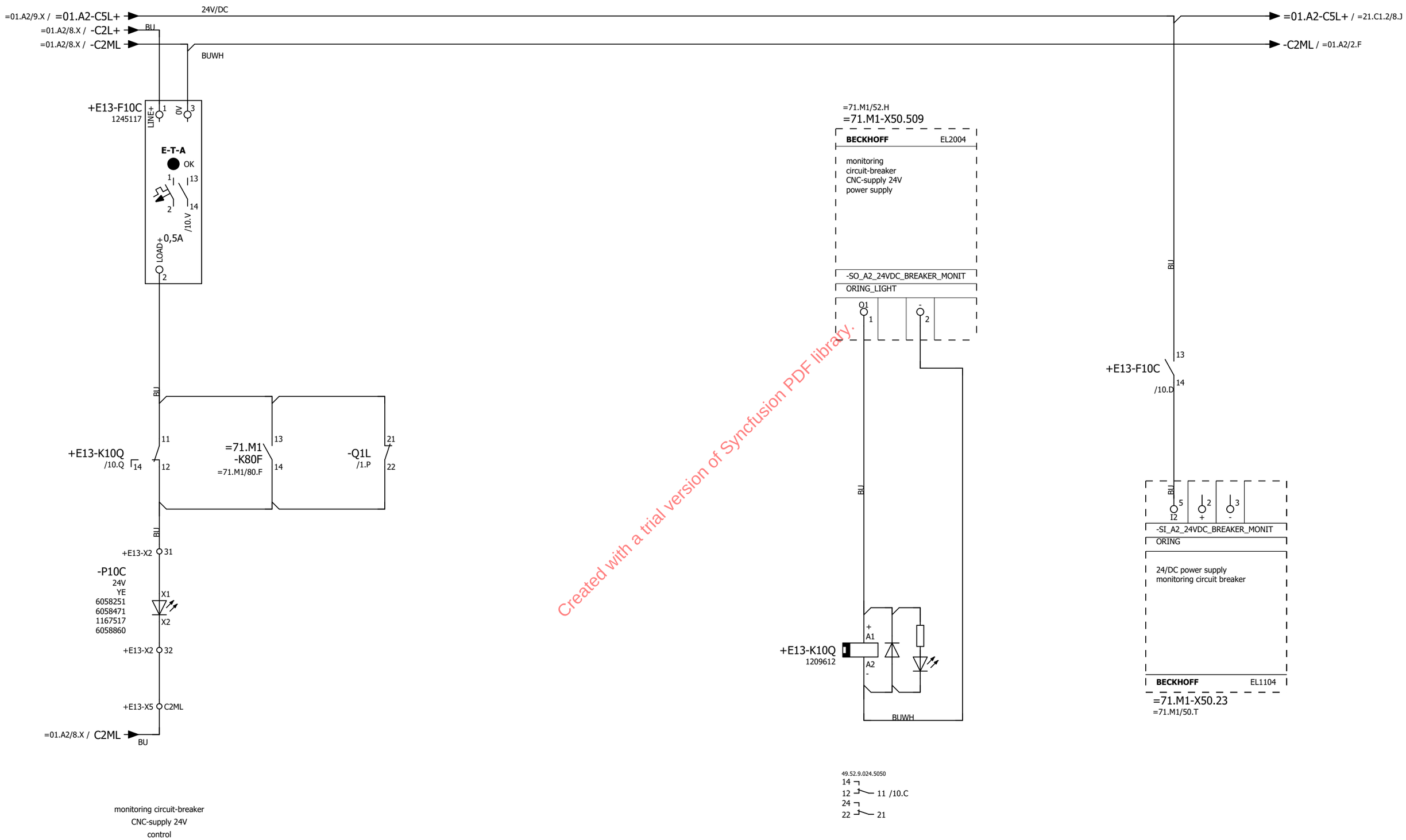

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			design.	PED						+ E11 / 10/11
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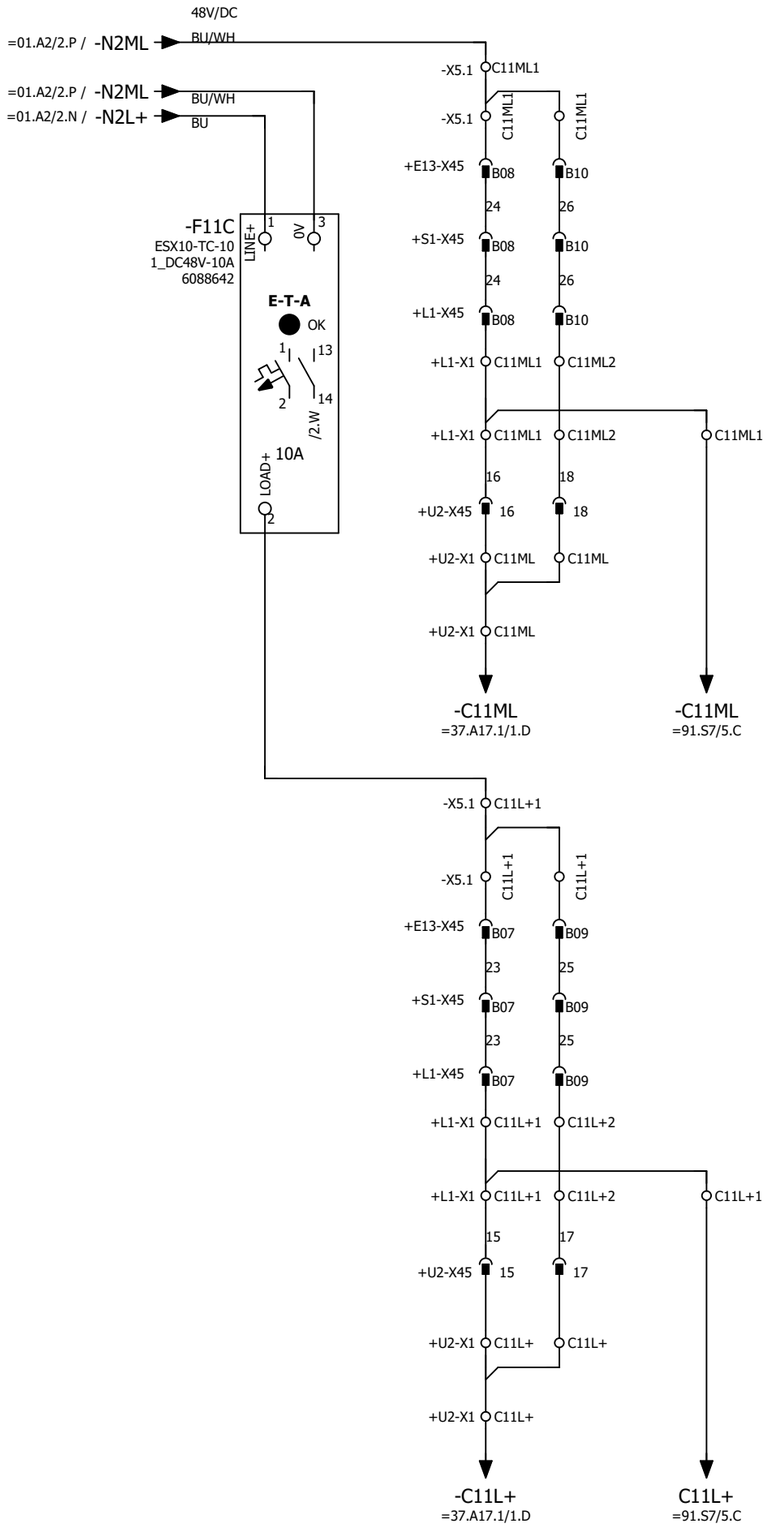

power supply 48V DC

Created with a trial version of Syncfusion PDF library.

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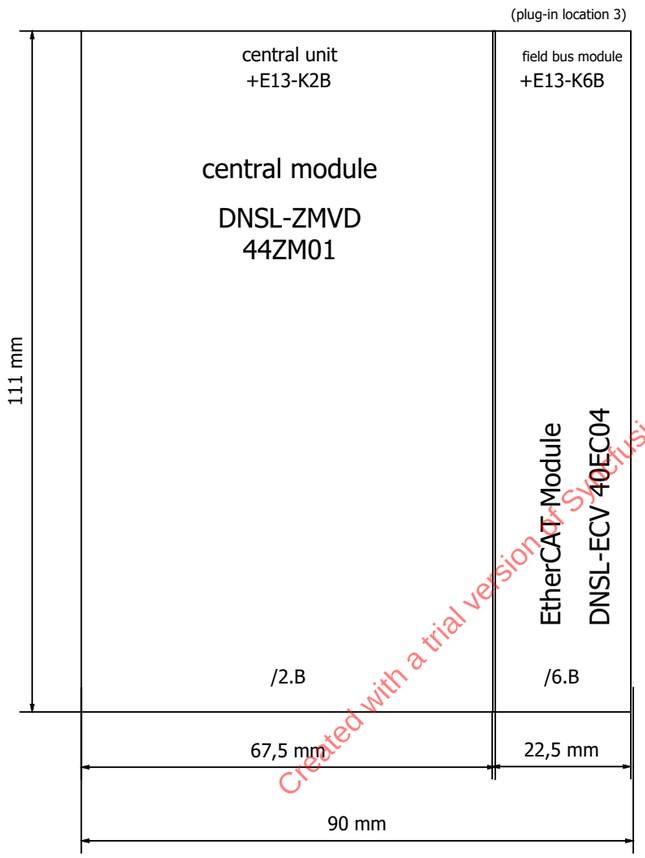
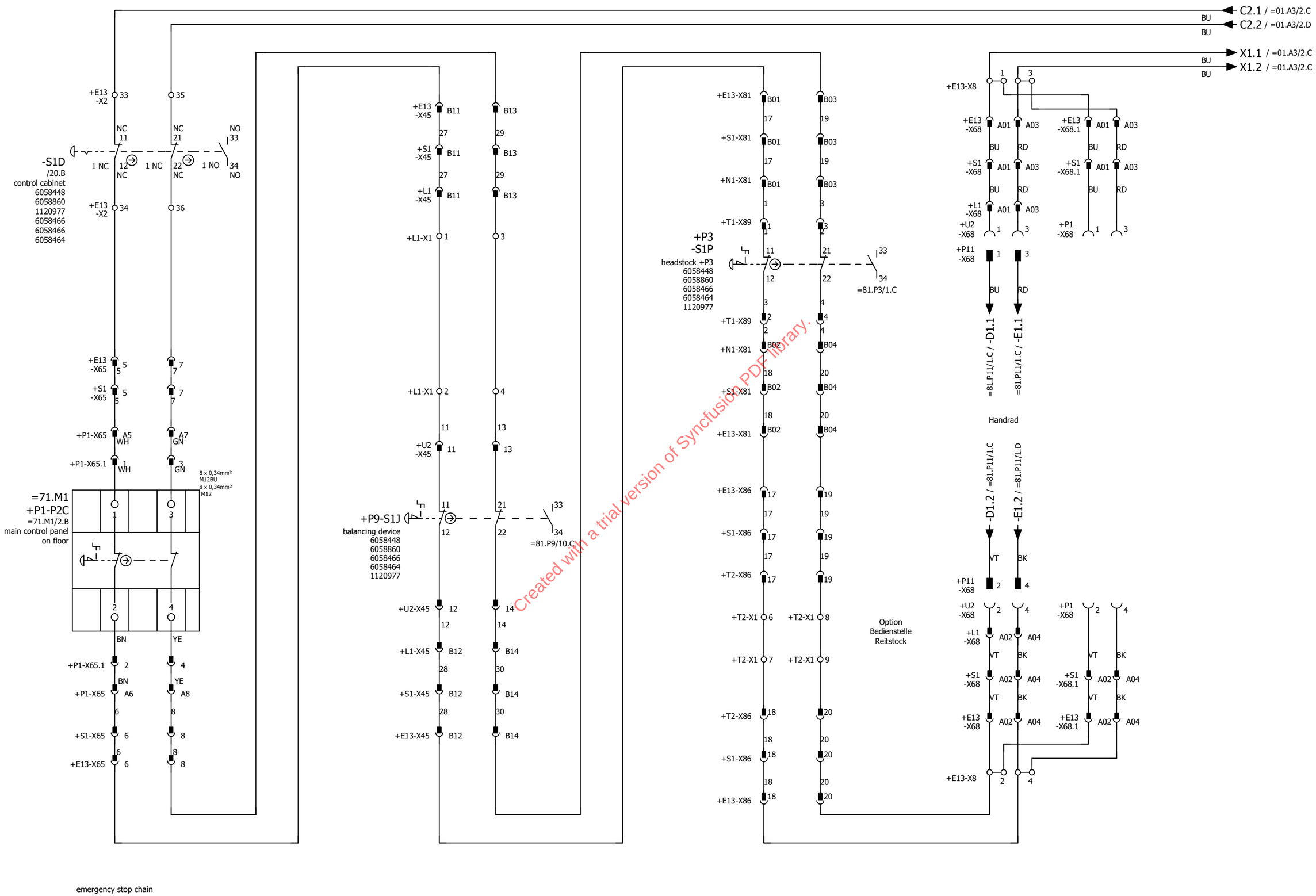


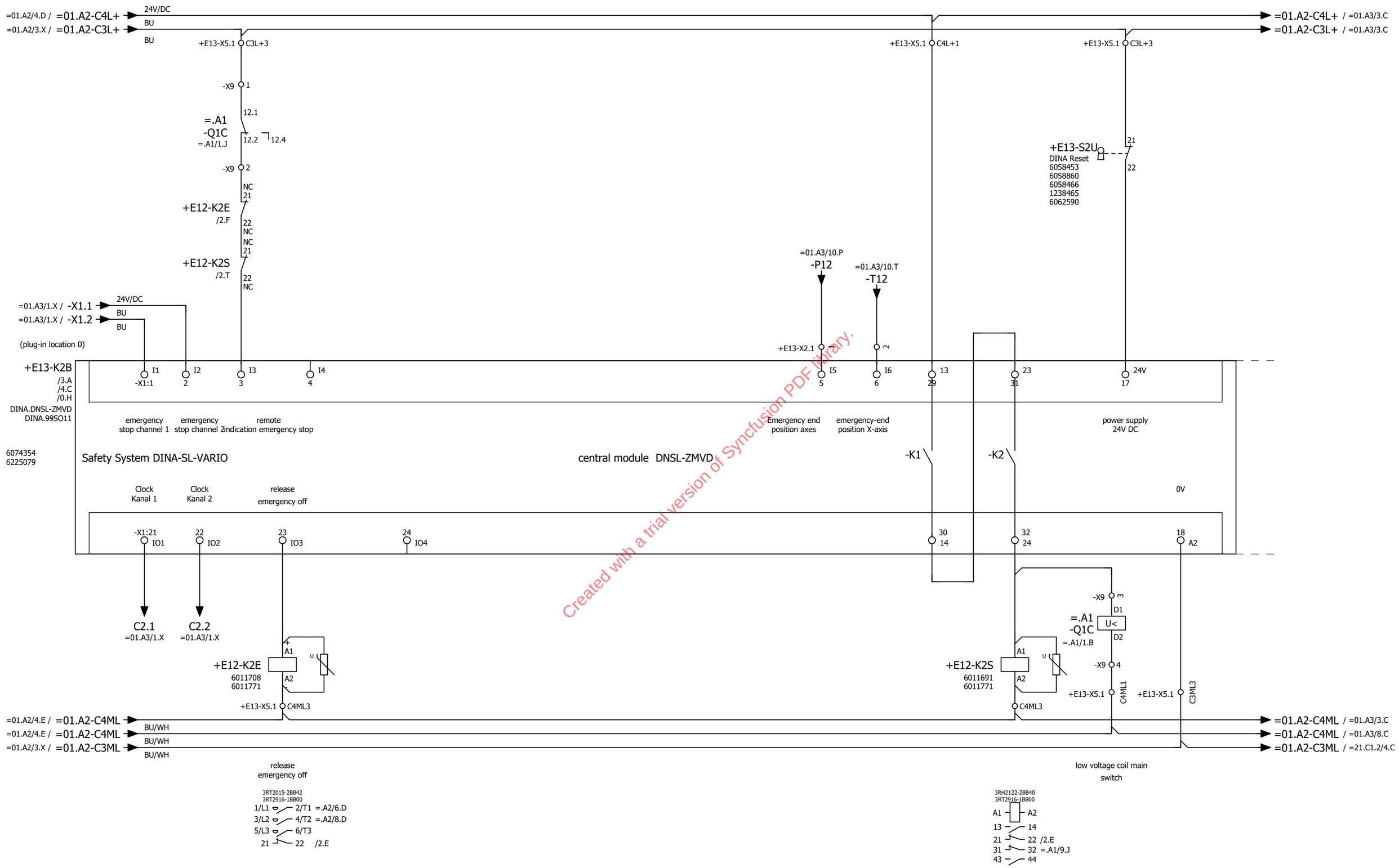
Created with a trial version of Systemfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	mounting DINA SL VARIO Control cabinet		= 01.A3	function page
			design.	PED						+ E11	0/20
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				48



Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	emergency stop control		= 01.A3 + E11	function page 1/20
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 49
change	date	name	norm		originally.	created for.	created by.				



Created with a trial version of Syncfusion PDF Library.

1 3

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	emergency stop control / DINA SL VARIO		= 01.A3	function page
			design.	PED					+ E11	2/20
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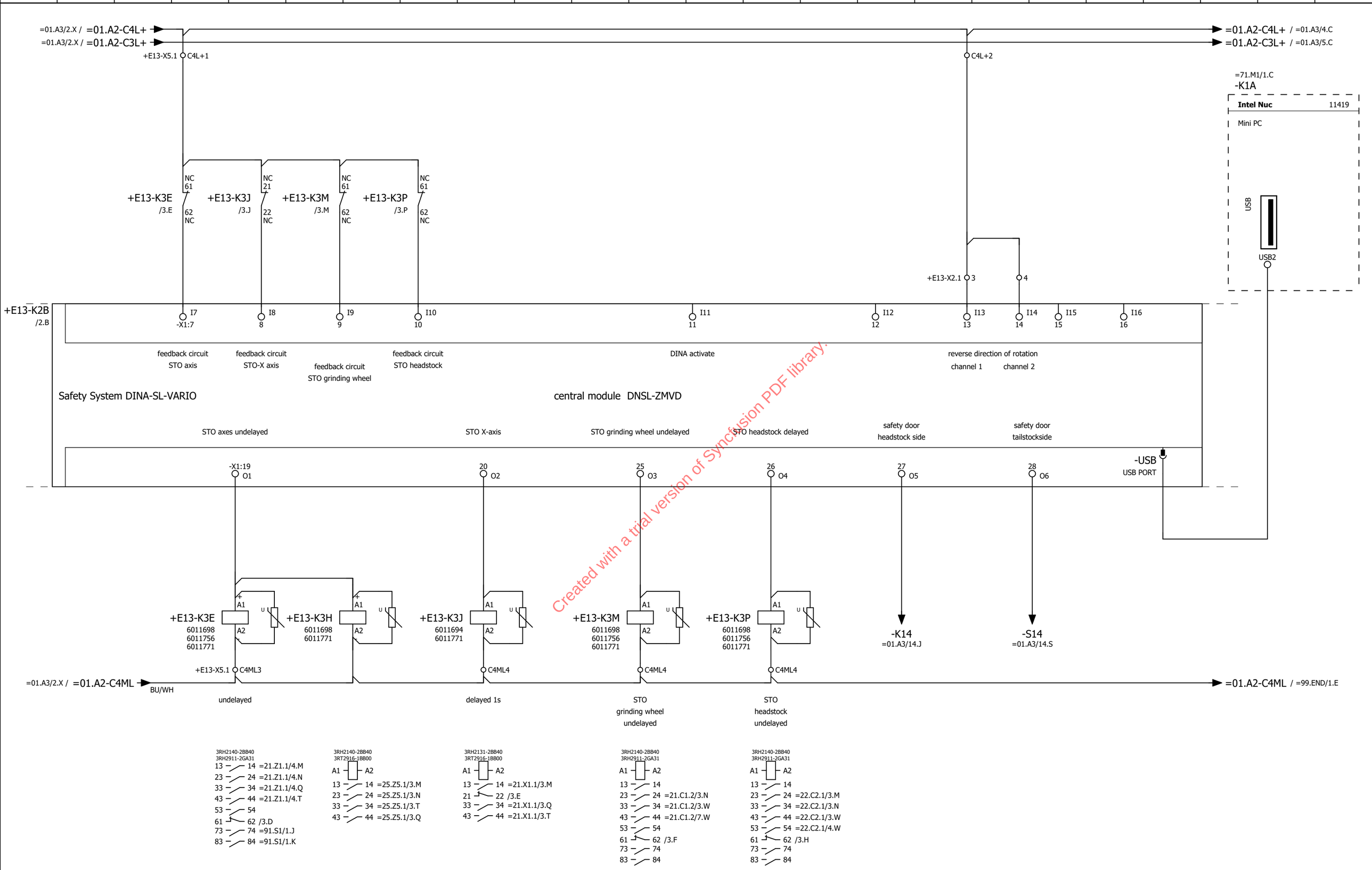
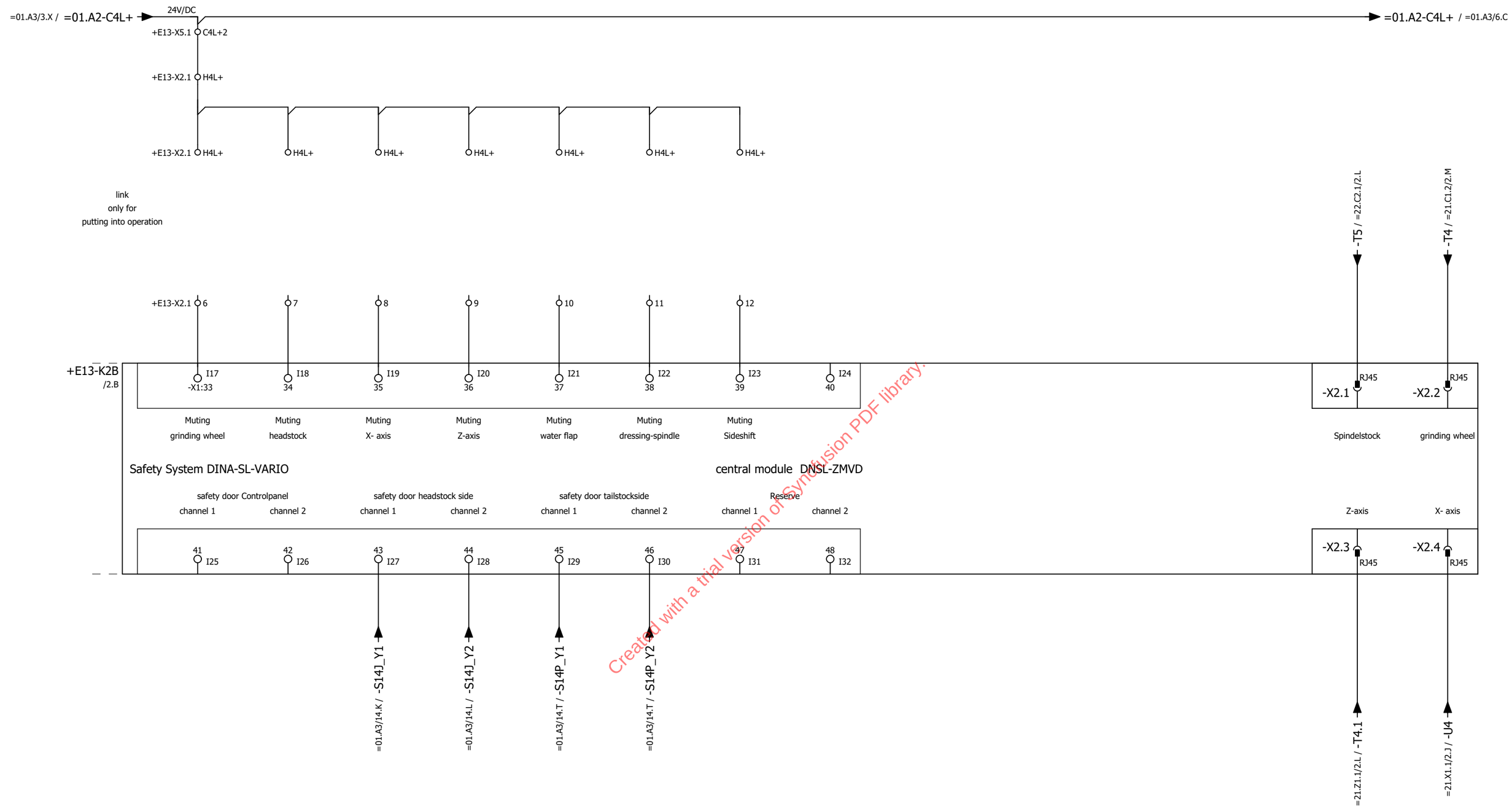
change	date	name	norm		originally.	created for.	created by.			50



Created with a trial version of Syncfusion PDF library.

2 4

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	emergency stop control / DINA SL VARIO		= 01.A3	function page
			design.	PED					+ E11	3/20
			check.					98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.			51

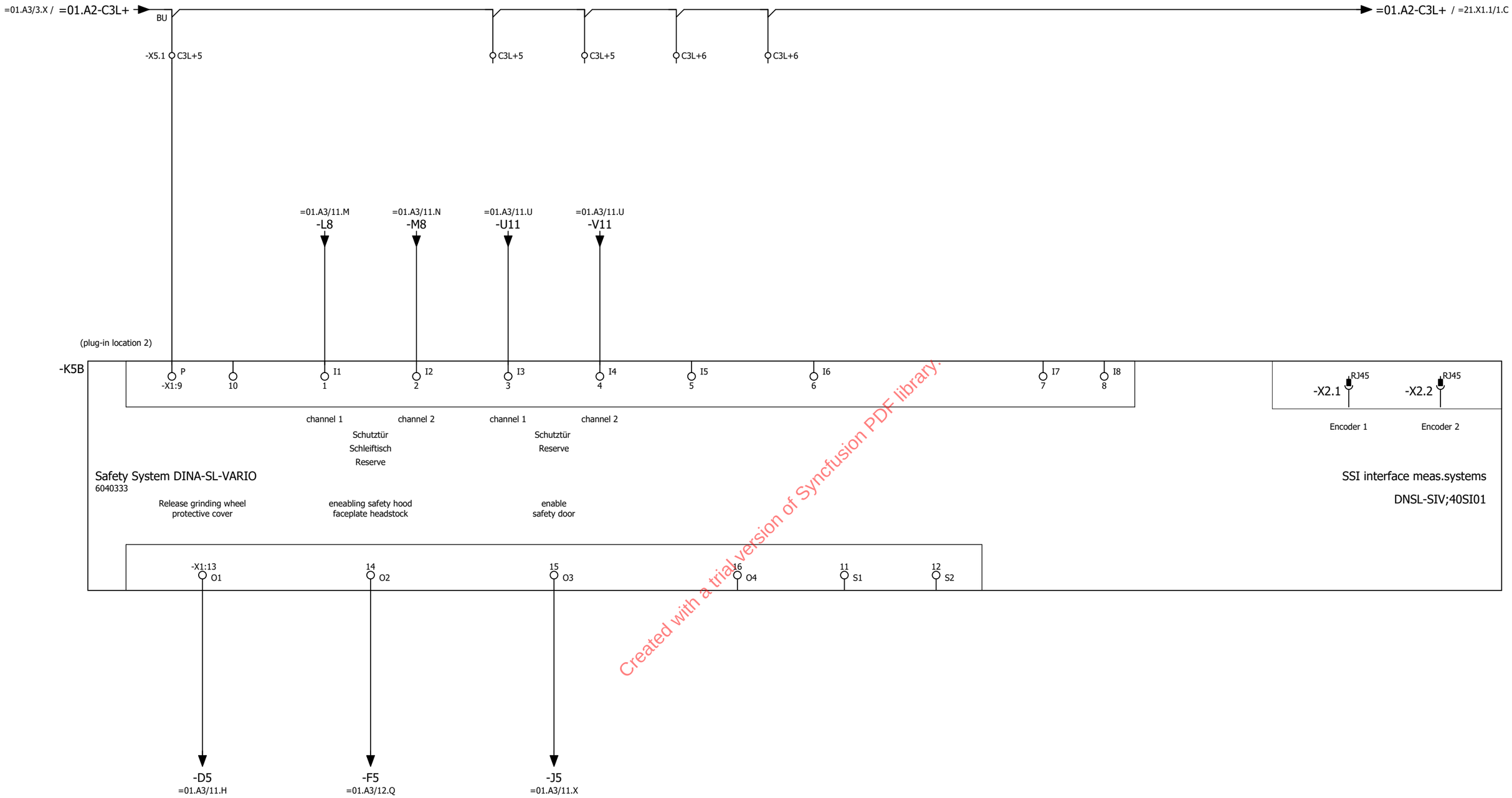


Created with a trial version of Syncfusion PDF library.

position encoder headstock | encoder grinding wheel | position encoder Z-axis | position encoder X-axis

3 5

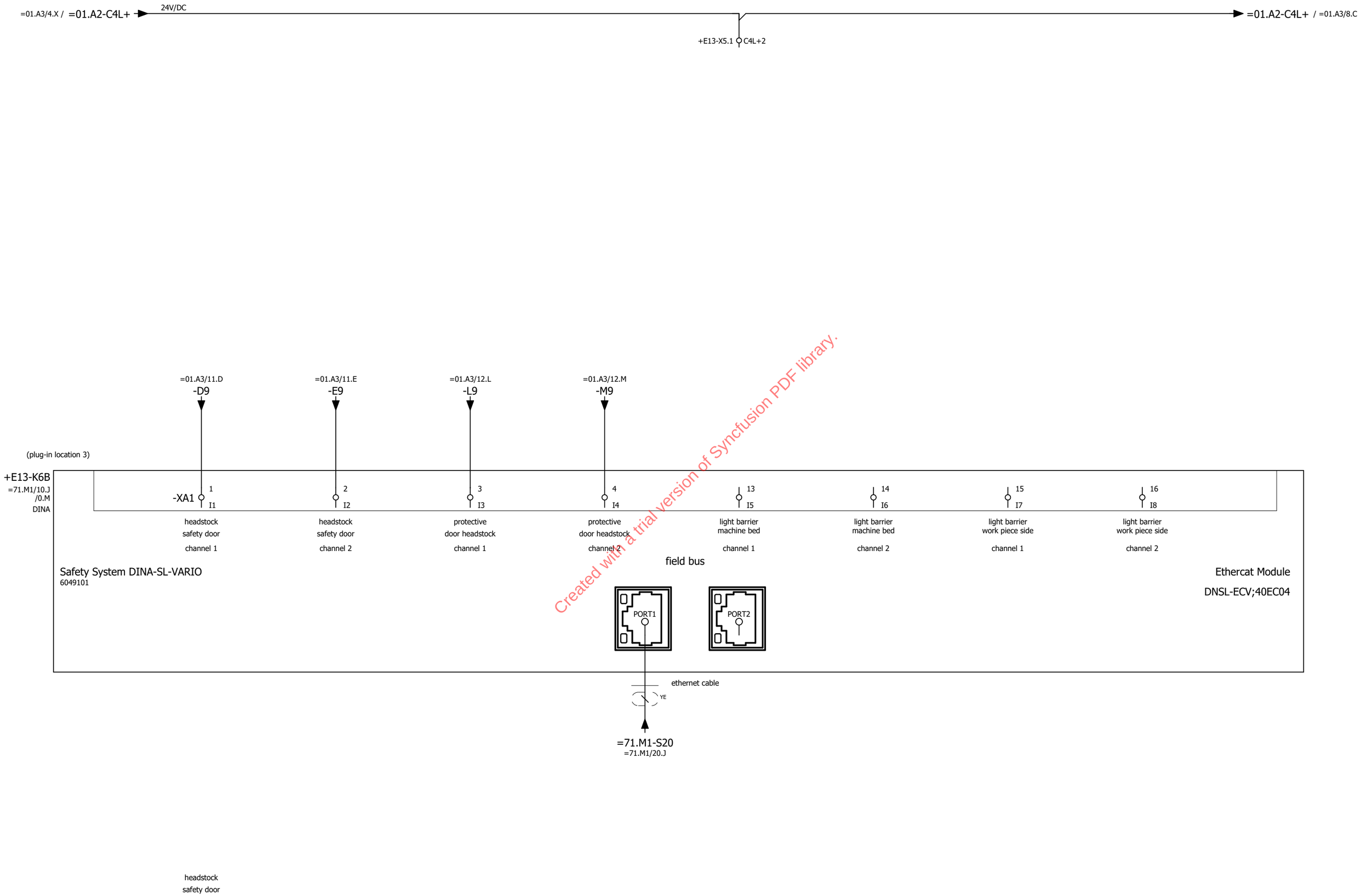
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	emergency stop control / DINA SL VARIO		= 01.A3	function page 4/20
			design.	PED						+ E11	
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 52
change	date	name	norm		originally.	created for.	created by.				



Created with a trial version of Syncfusion PDF library.

4 6

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	emergency stop control / DINA SL VARIO		= 01.A3 + E13	function page 5/20
			design.	PED					98290 WS450 KL x 5500 CNC Monolith	2953	page 53
			check.								
change	date	name	norm		originally.	created for.	created by.				



Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	emergency stop control / DINA SL VARIO		= 01.A3	function page
			design.	PED						+ E11	6/20
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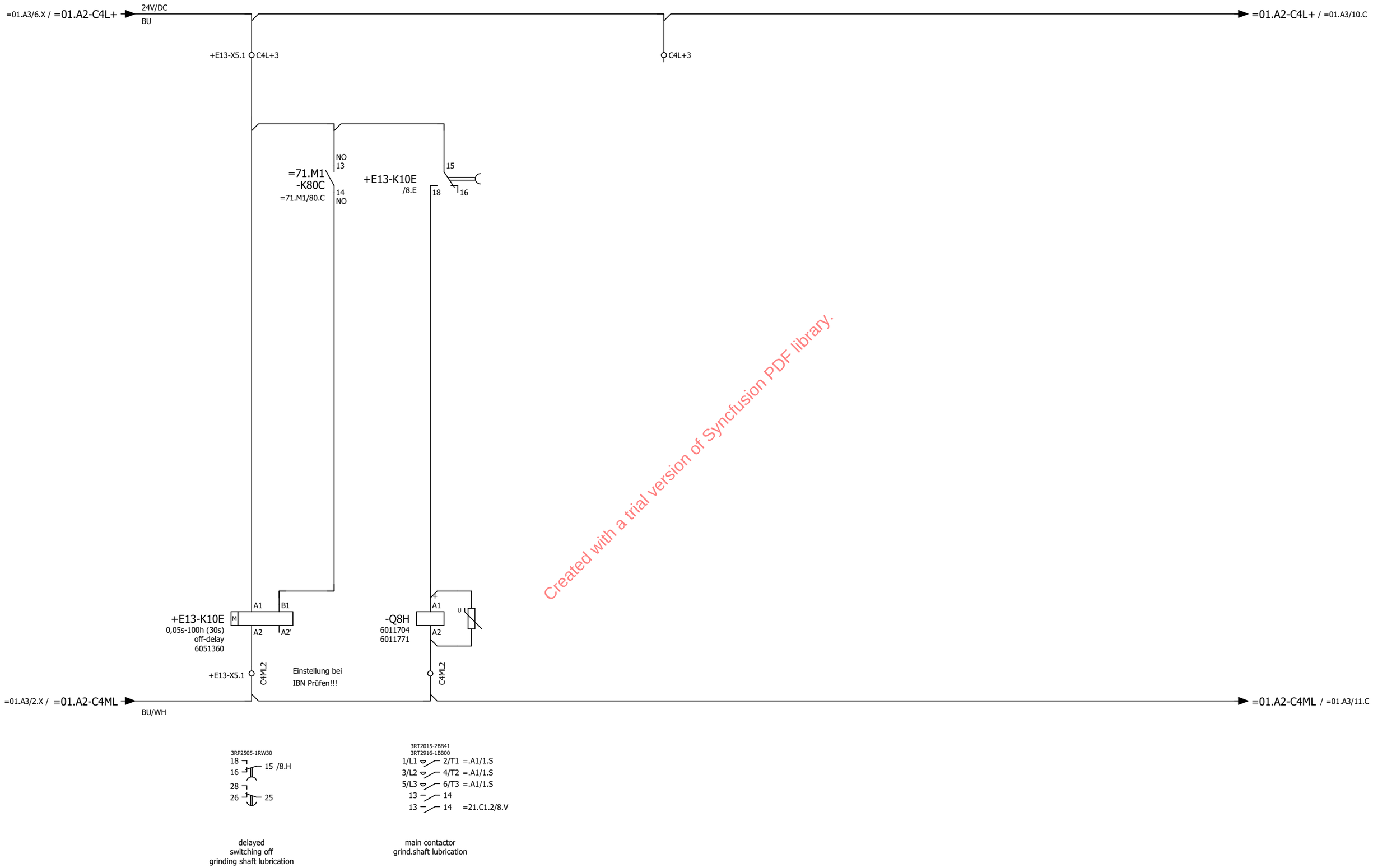
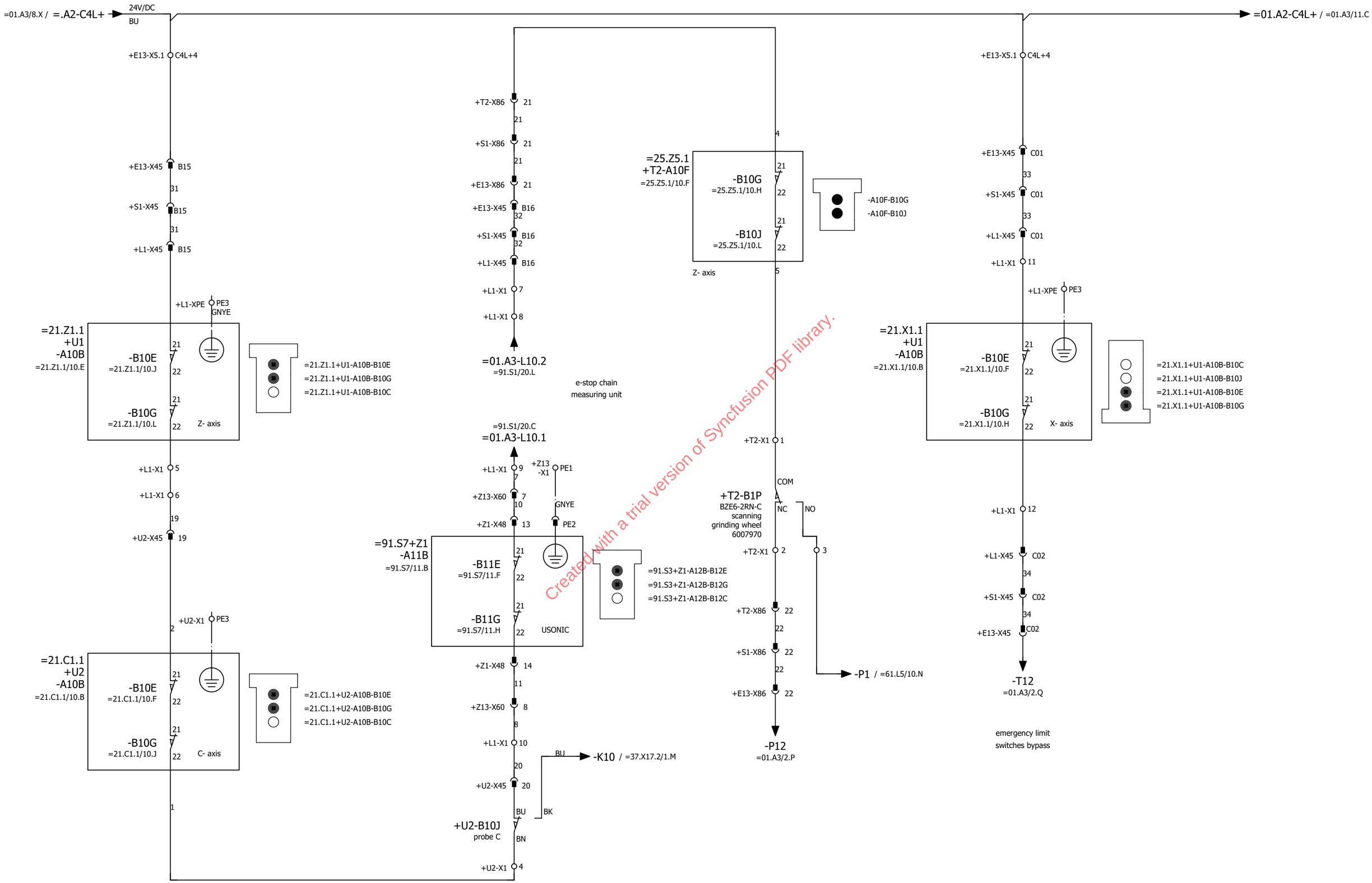
change	date	name	norm		originally.	created for.	created by.				54



Created with a trial version of Syncfusion PDF library.

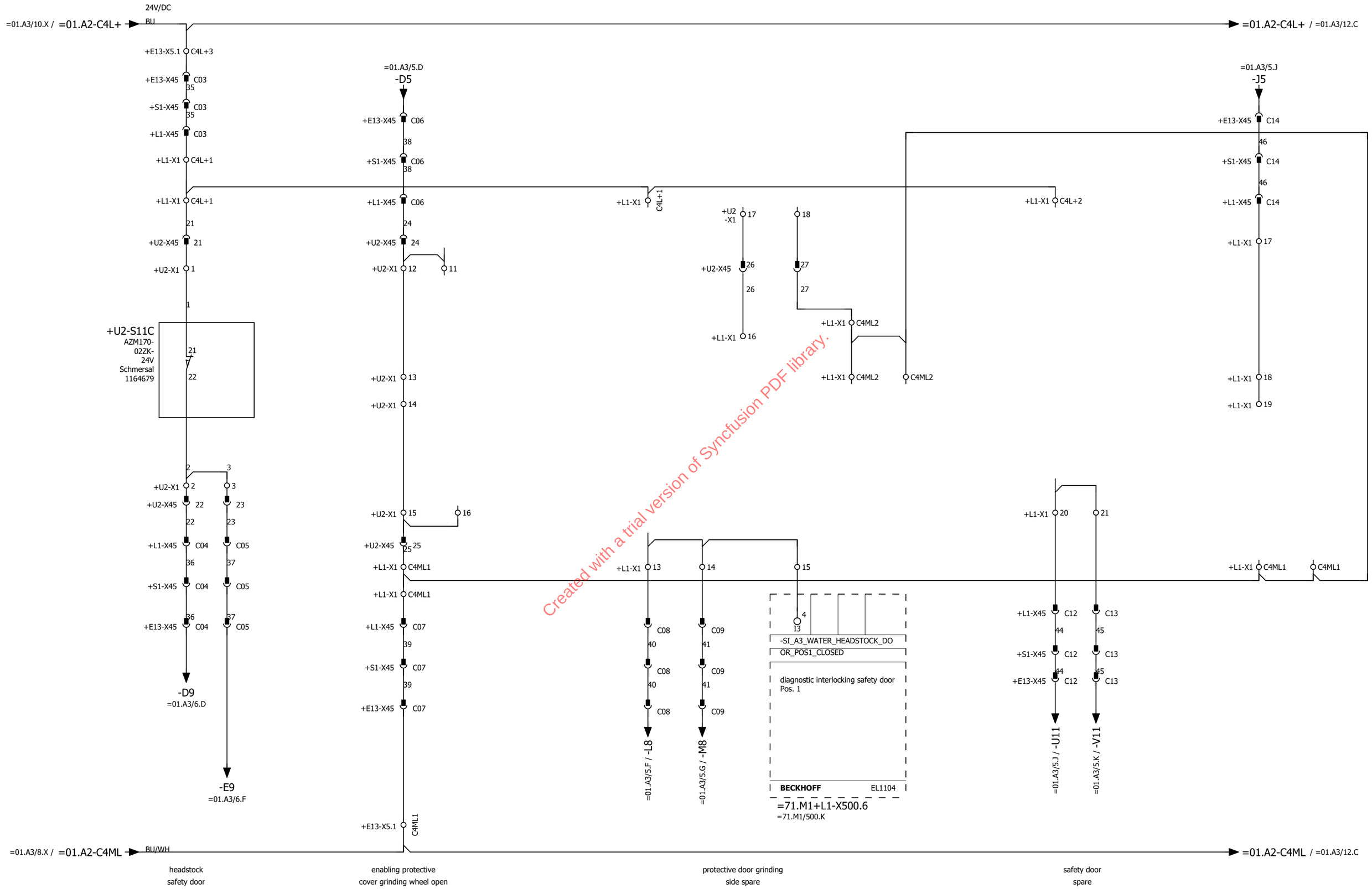
6 10

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	emergency stop control		= 01.A3 + E11	function page 8/20
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 55
change	date	name	norm		originally.	created for.	created by.				



Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	emergency end position control		= 01.A3	function page
			design.	PED						+ E11	10/20
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 56
change	date	name	norm		originally.	created for.	created by.				



Created with a trial version of Syncfusion PDF library.

10 12

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	protective door grinding side		= 01.A3 + E11	function page 11/20
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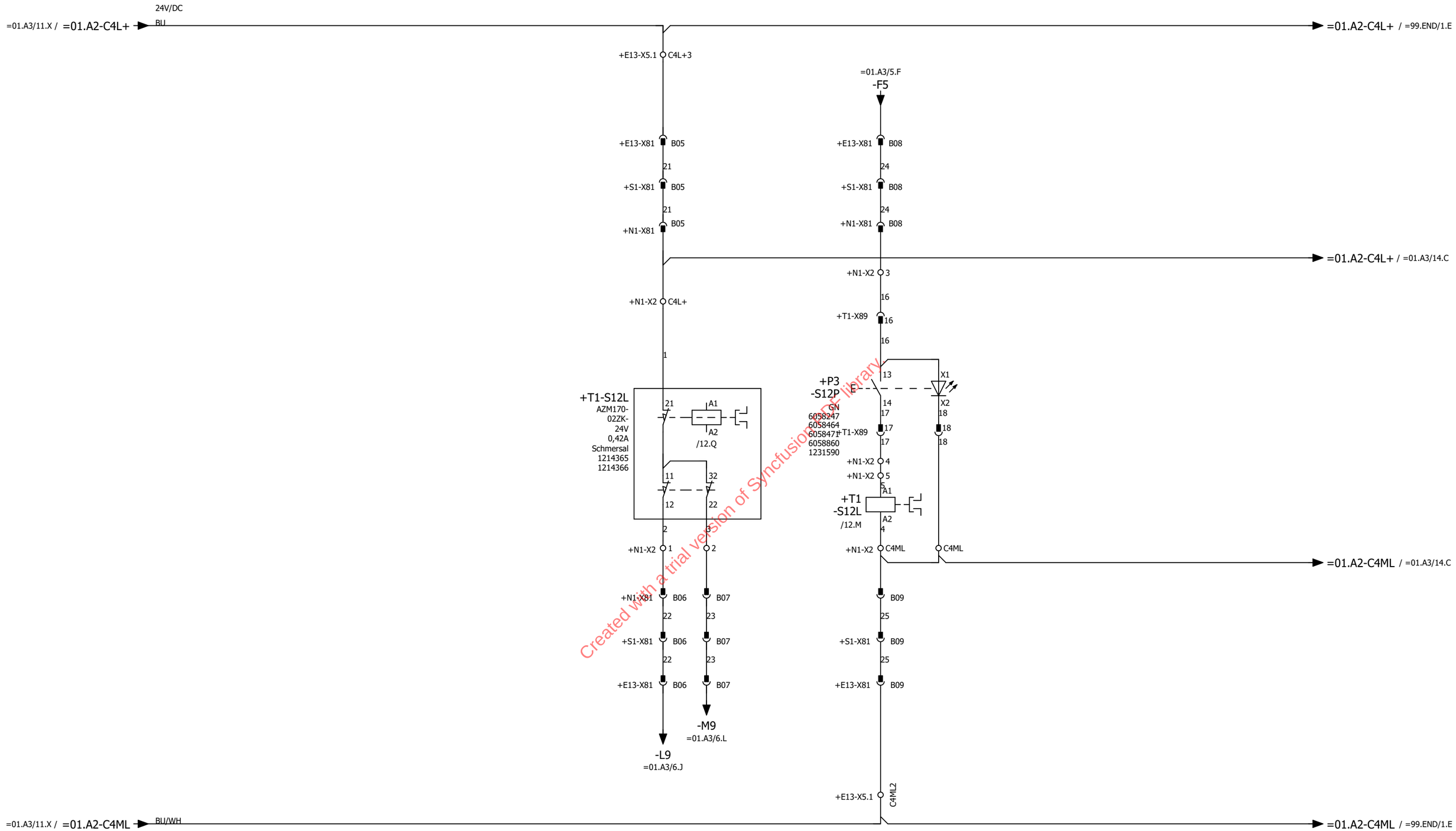
change	date	name	norm		originally.	created for.	created by.				



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11 14

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	protective door headstock		= 01.A3 + E11	function page 12/20
			design.	PED						
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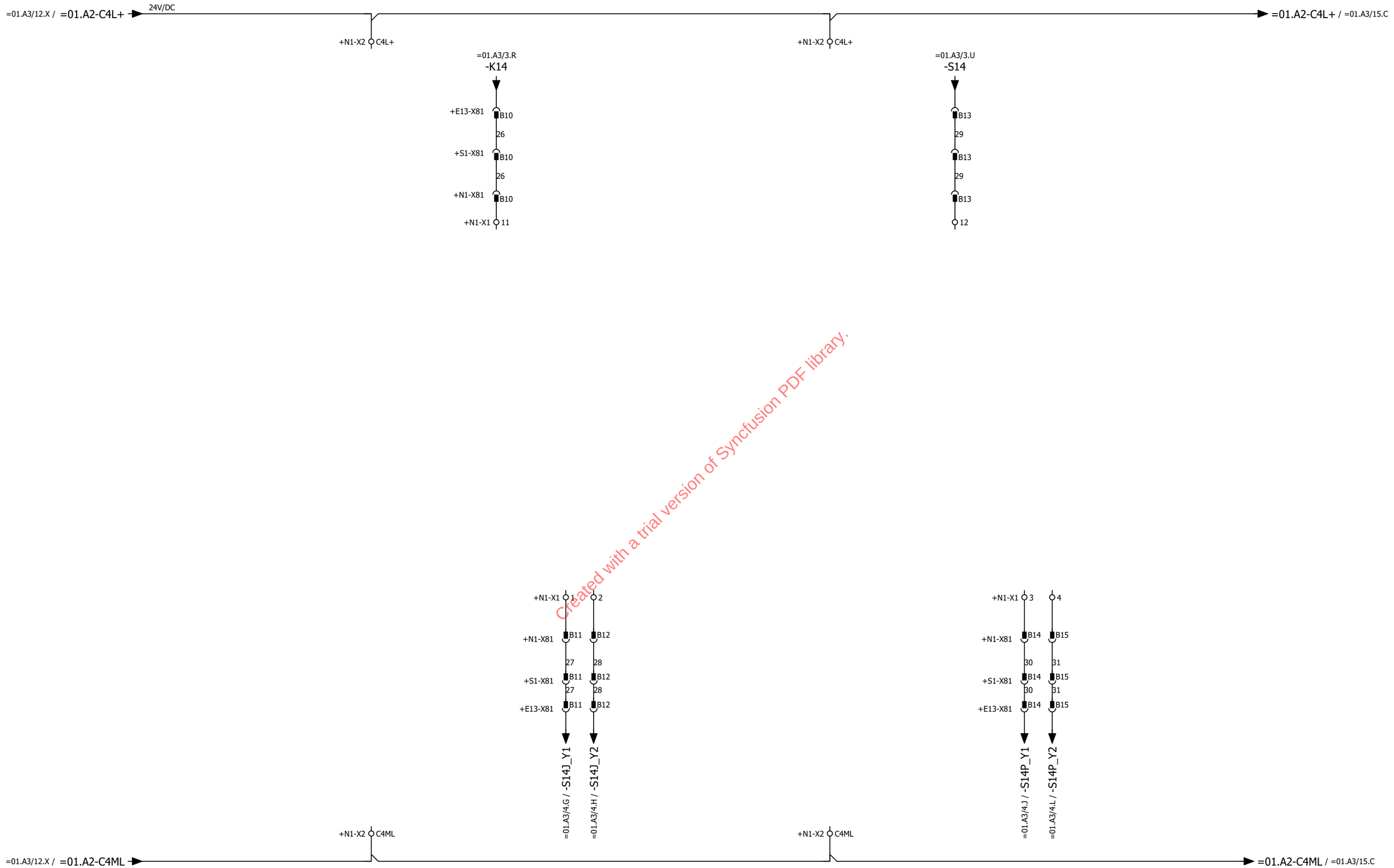
change	date	name	norm		originally.	created for.	created by.			

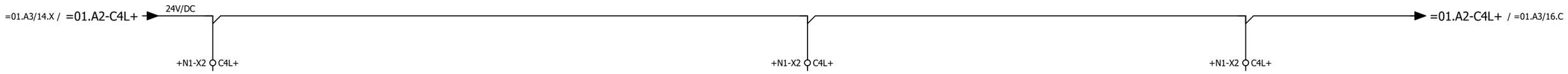


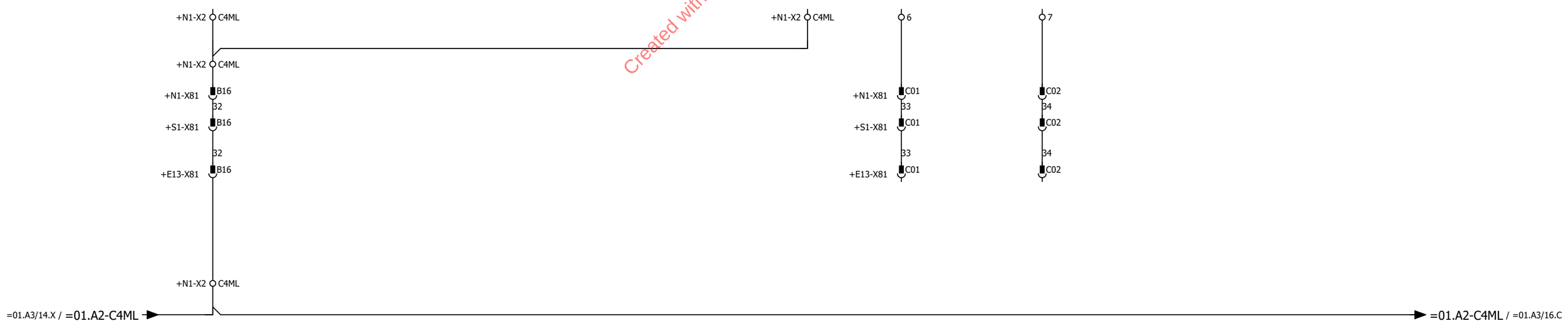
safety door headstock side

safety door tailstockside

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	safety doors		= 01.A3	function page
			design.	PED						+ E11	14/20
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				59



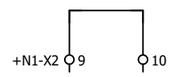


Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	light barrier work piece side		= 01.A3
			design.	PED						+ E11
			check.						98290 WS450 KL x 5500 CNC Monolith	2953
change	date	name	norm		originally.	created for.	created by.			

function page 15/20

page 60



Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	light barrier machine bed		= 01.A3	function page
			design.	PED						+ E11	16/20
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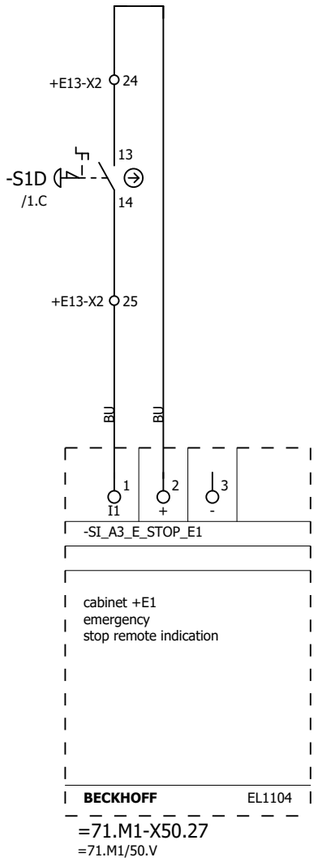
change	date	name	norm		originally.	created for.	created by.				61



Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	emergency stop I/O		= 01.A3	function page
			design.	PED						+ E11	20/20
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				62

A B C D E F G H J K L M N P Q R S T U V W X Y Z

=21.C1.2-T1B

=21.C1.2: grinding wheel
power module BM5545-SI06-0100-0128-00-01-E80-#01
safety module BM5-O-SAF-001-000

=11.H0-T3B

=11.H0: infeed-/feedback unit
infeed-/feedback modul BM5173-ST00-0000-0108-00-01 (Step2)

=22.C2.1-T1D

=22.C2.1: headstock
single axis module: BM5334-SG02-0100-0128-00-01-E80-#01
safety module BM5-O-SAF-001-000

=21.Z1.1-T1G

=21.Z1.1: Z-axis
double-axis module: BM5325-SG04-0100-0128-00-01-E80-#01
safety module BM5-O-SAF-001-000

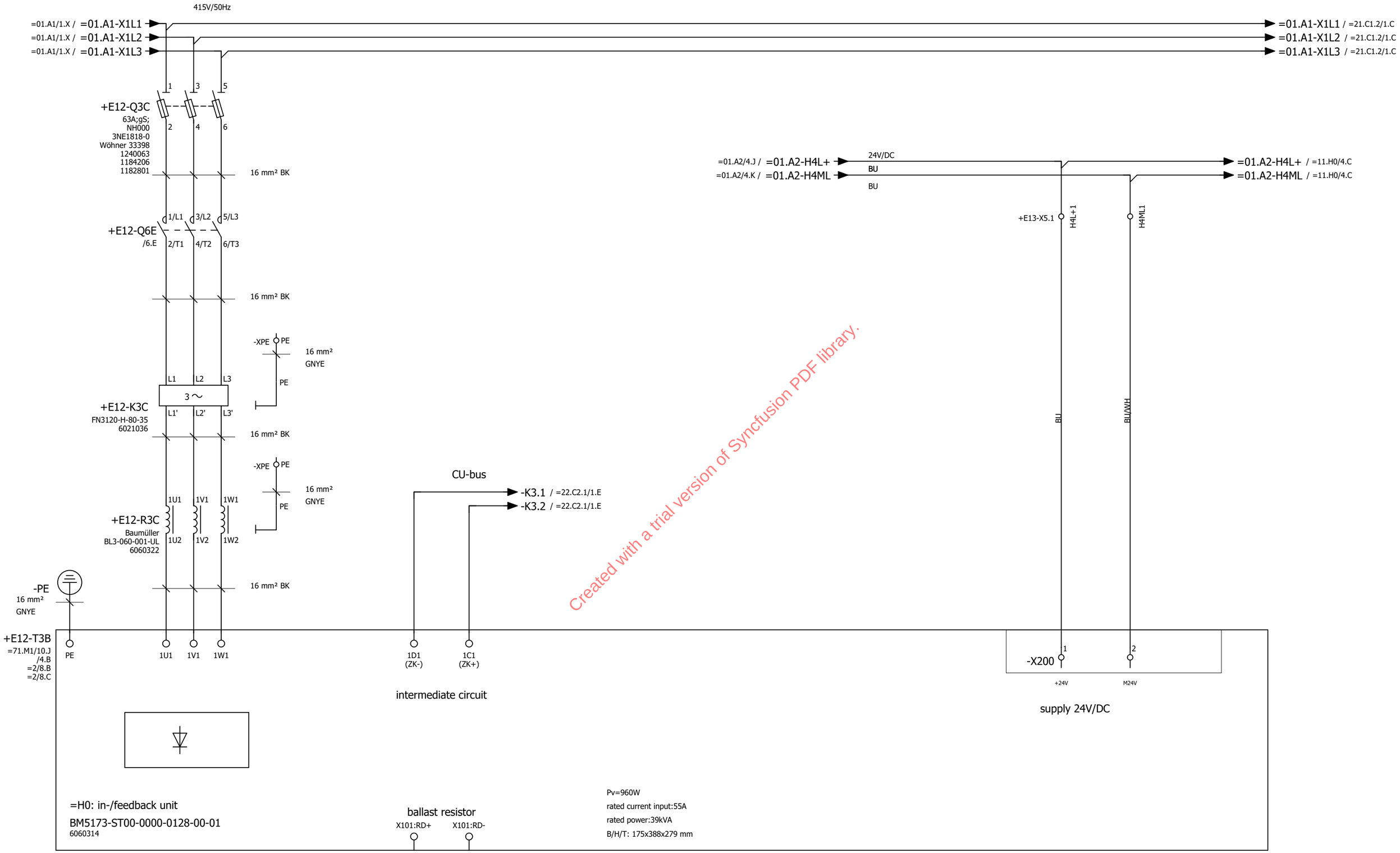
=21.X1.1-T1E

=21.X1.1: X- axis
=21.C1.1: C-axis
double-axis module: BM5325-SG04-0100-0128-00-01-E80-#01
safety module BM5-O-SAF-001-000

=25.Z5.1-T1G

=25.Z5.1: tailstock Z-adjustment
double-axis module: BM5323-SG04-0100-0128-00-01-E80-01
safety module BM5-O-SAF-001-000

Created with a trial version of Syncfusion PDF library.



Created with a trial version of Syncfusion PDF library.

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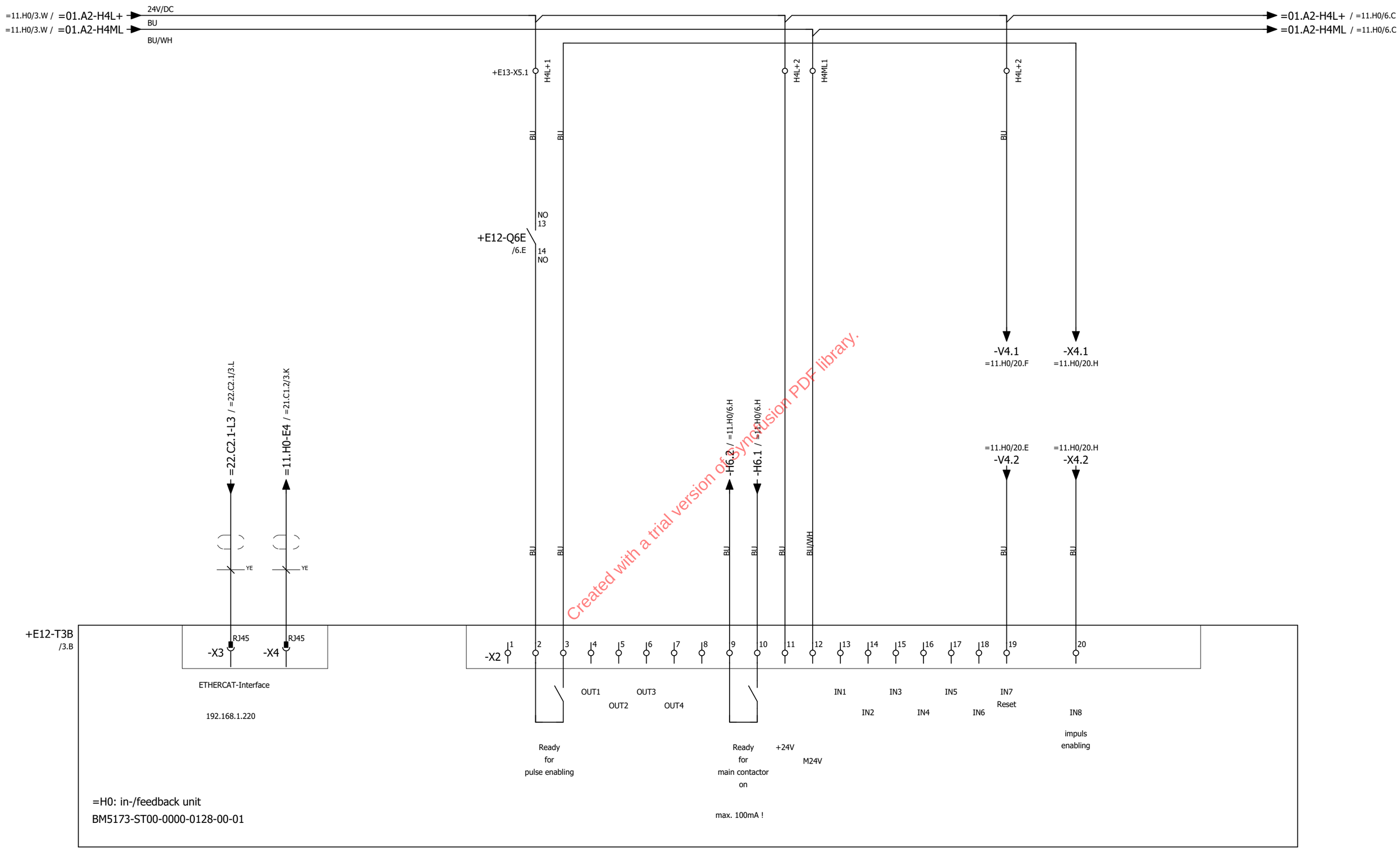
change	date	name	norm		originally.	created for.	created by.				64



Created with a trial version of Synopsis PDF library.

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			design.	PED						+ E11	4/20
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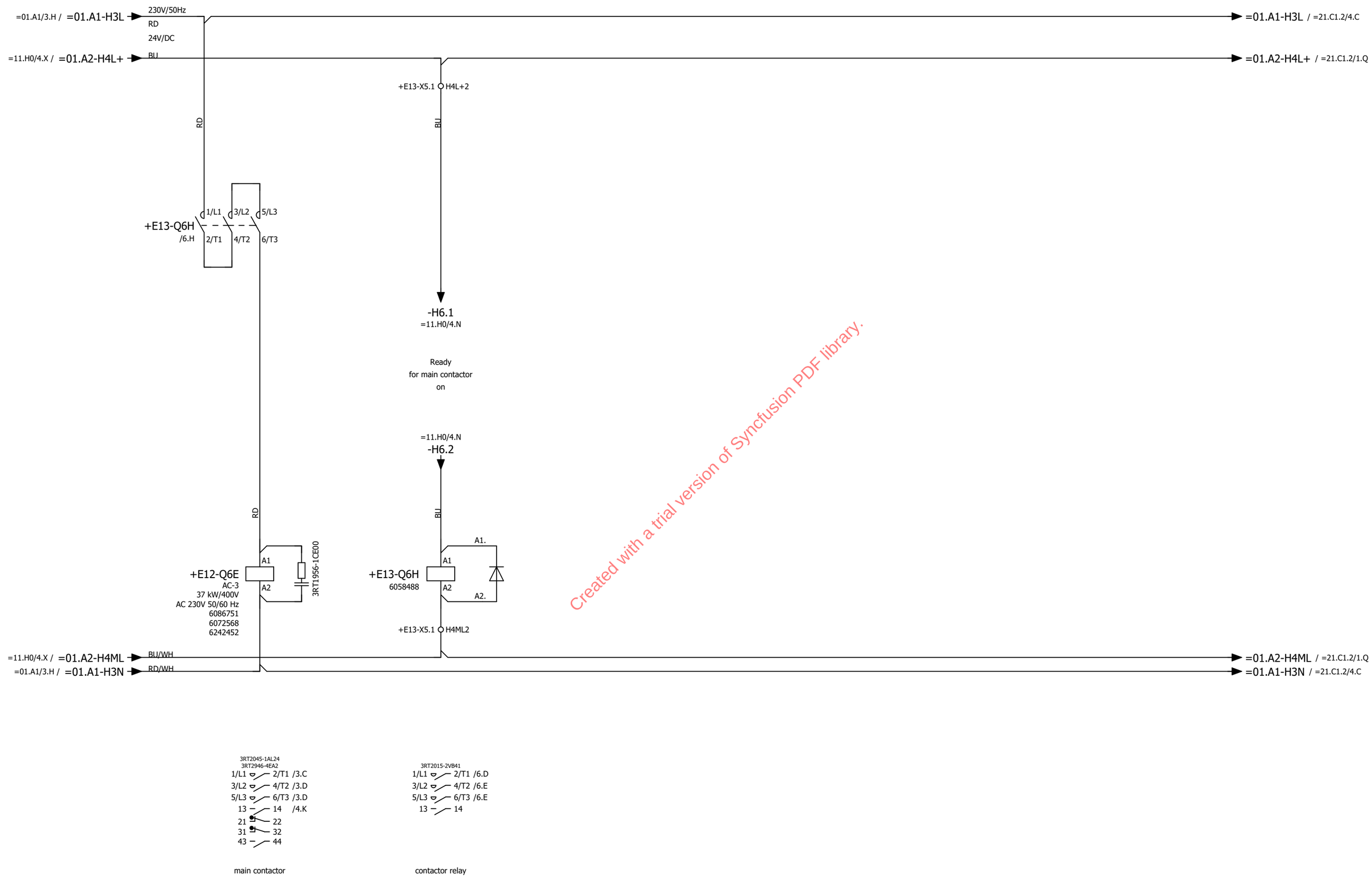
change	date	name	norm		originally.	created for.	created by.				65



Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	infeed-/feedback unit		= 11.H0	function page
			design.	PED						+ E11	6/20
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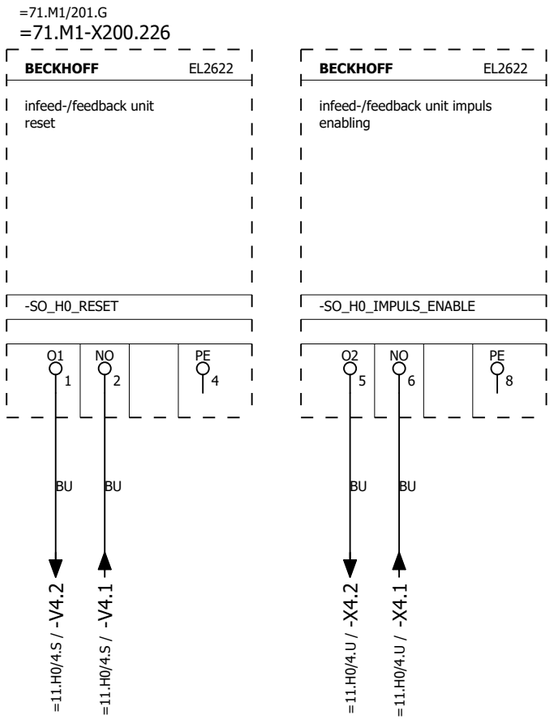
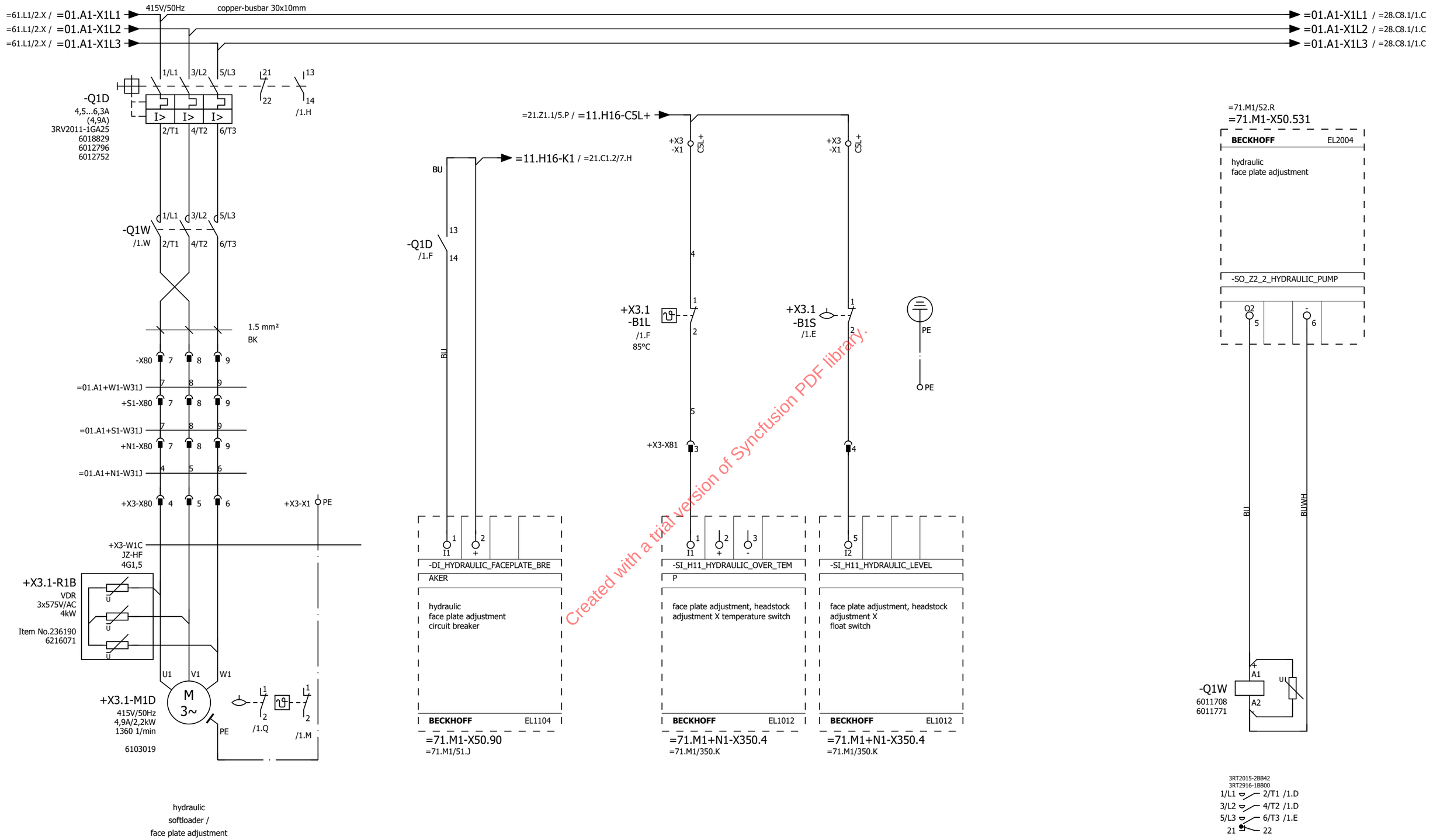
change	date	name	norm		originally.	created for.	created by.				66



Created with a trial version of Syncfusion PDF library.



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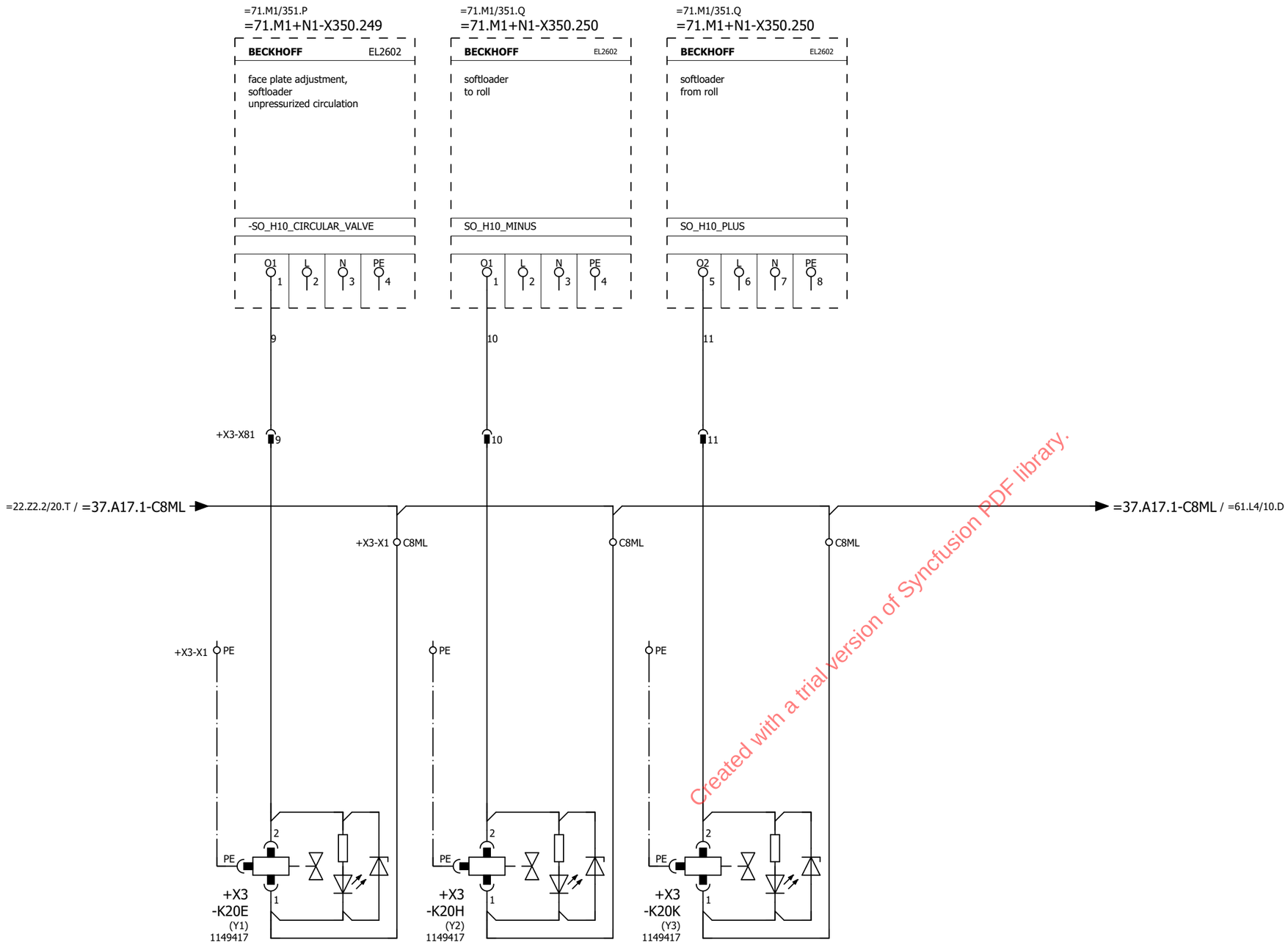
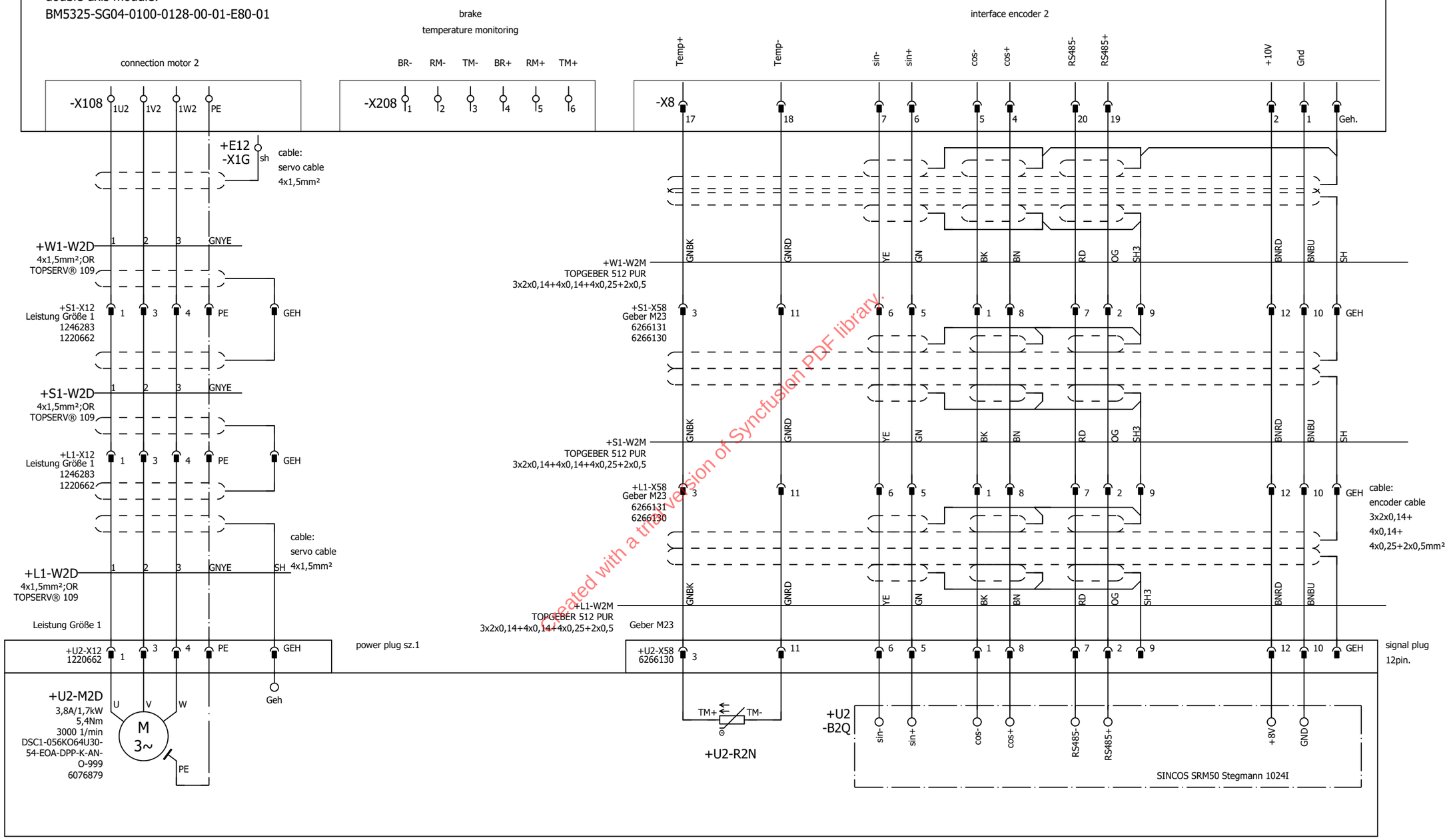


Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	hydraulic softloader / face plate adjustment I/O		= 11.H11 + E11	function page 20/20
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 69
change	date	name	norm		originally.	created for.	created by.				

=.X1.1+E12-T1G
=.X1.1/1.D

=21.X1.1-T1G: x/-c-axis
double-axis module:
BM5325-SG04-0100-0128-00-01-E80-01



Created with a trial version of Syncfusion PDF library.

c-axis

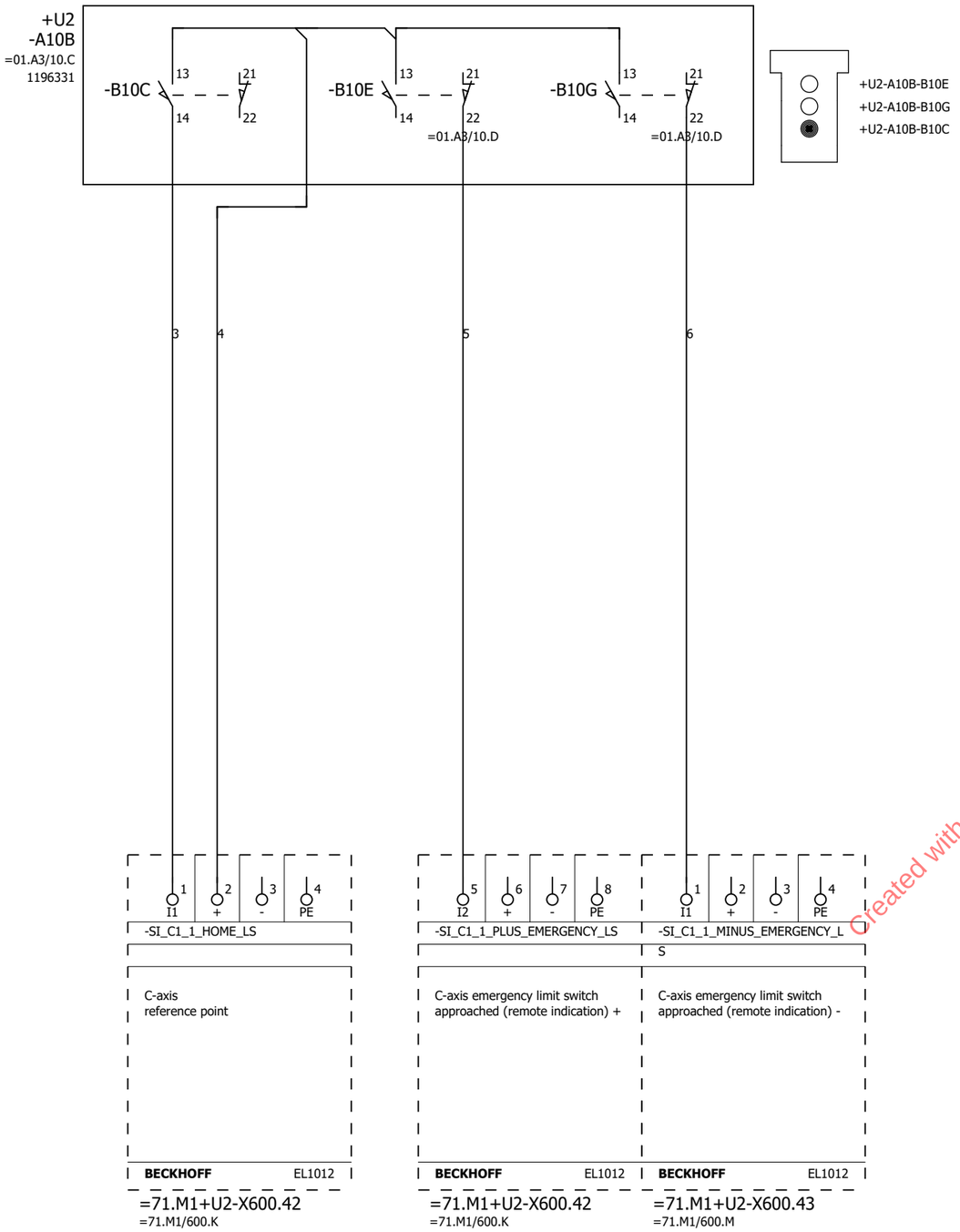
motor temperature

c-axis

=11.H11/20

10

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	c-axis		= 21.C1.1 + E11	function page 2/20
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 70
change	date	name	norm		originally.	created for.	created by.				



Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	C-axis I/O		= 21.C1.1 + L1	function page 10/20
			design.	PED							
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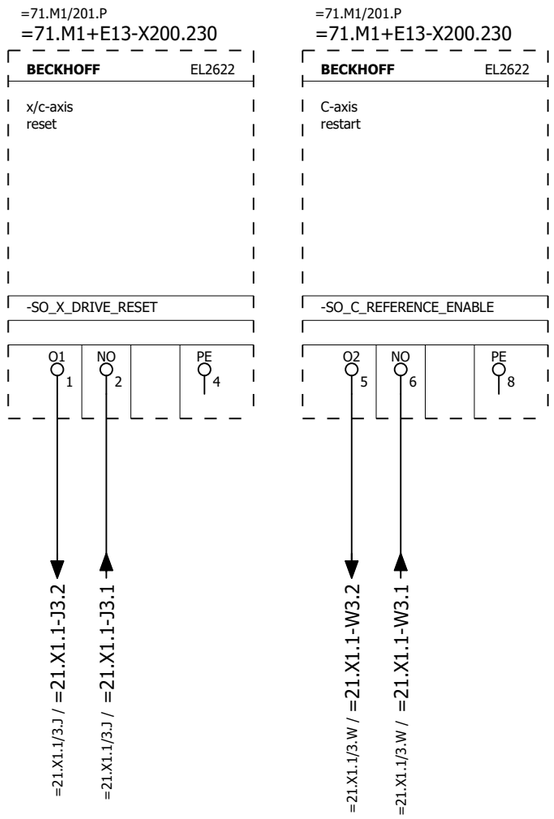
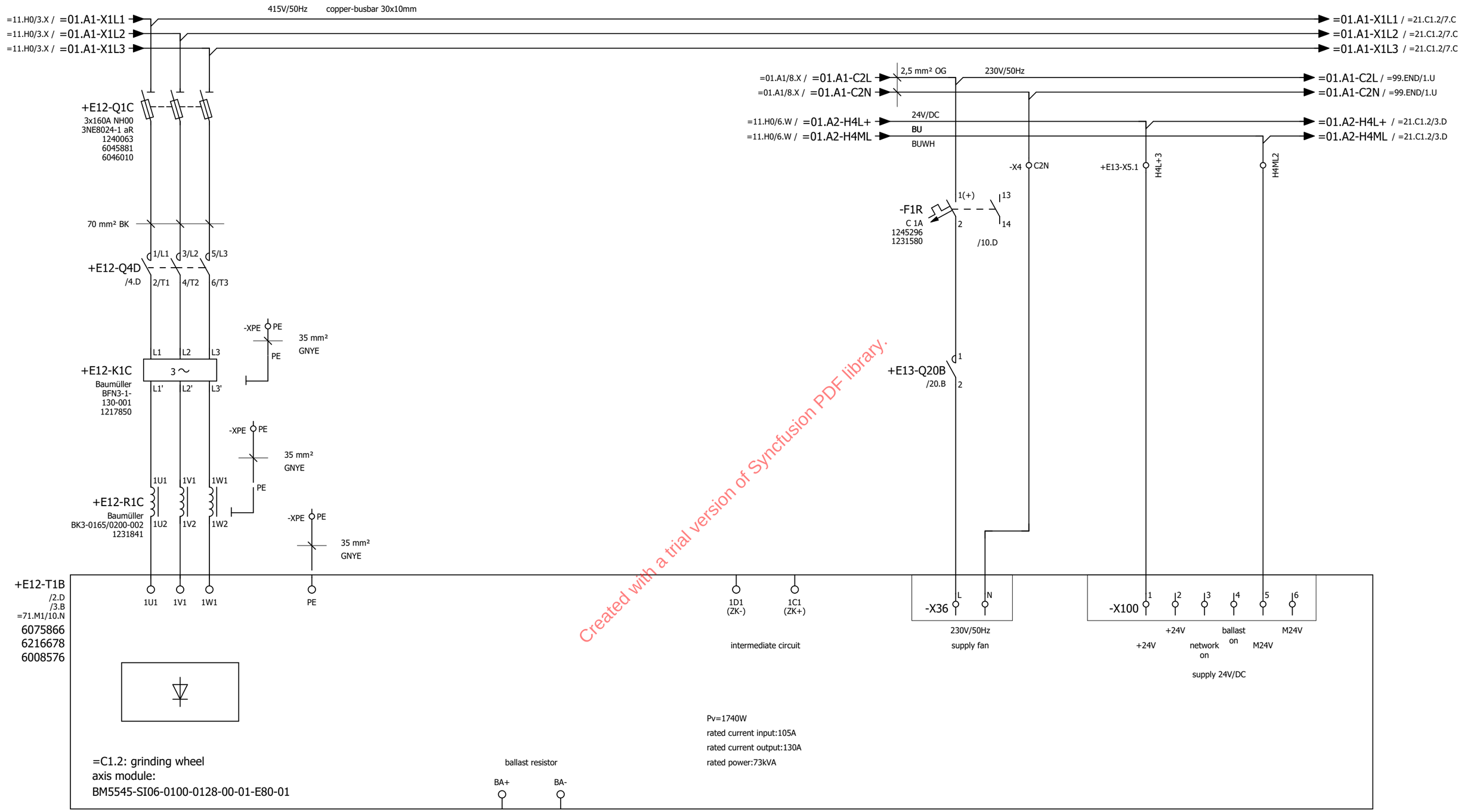
change	date	name	norm		originally.	created for.	created by.				



Created with a trial version of Syncfusion PDF library.

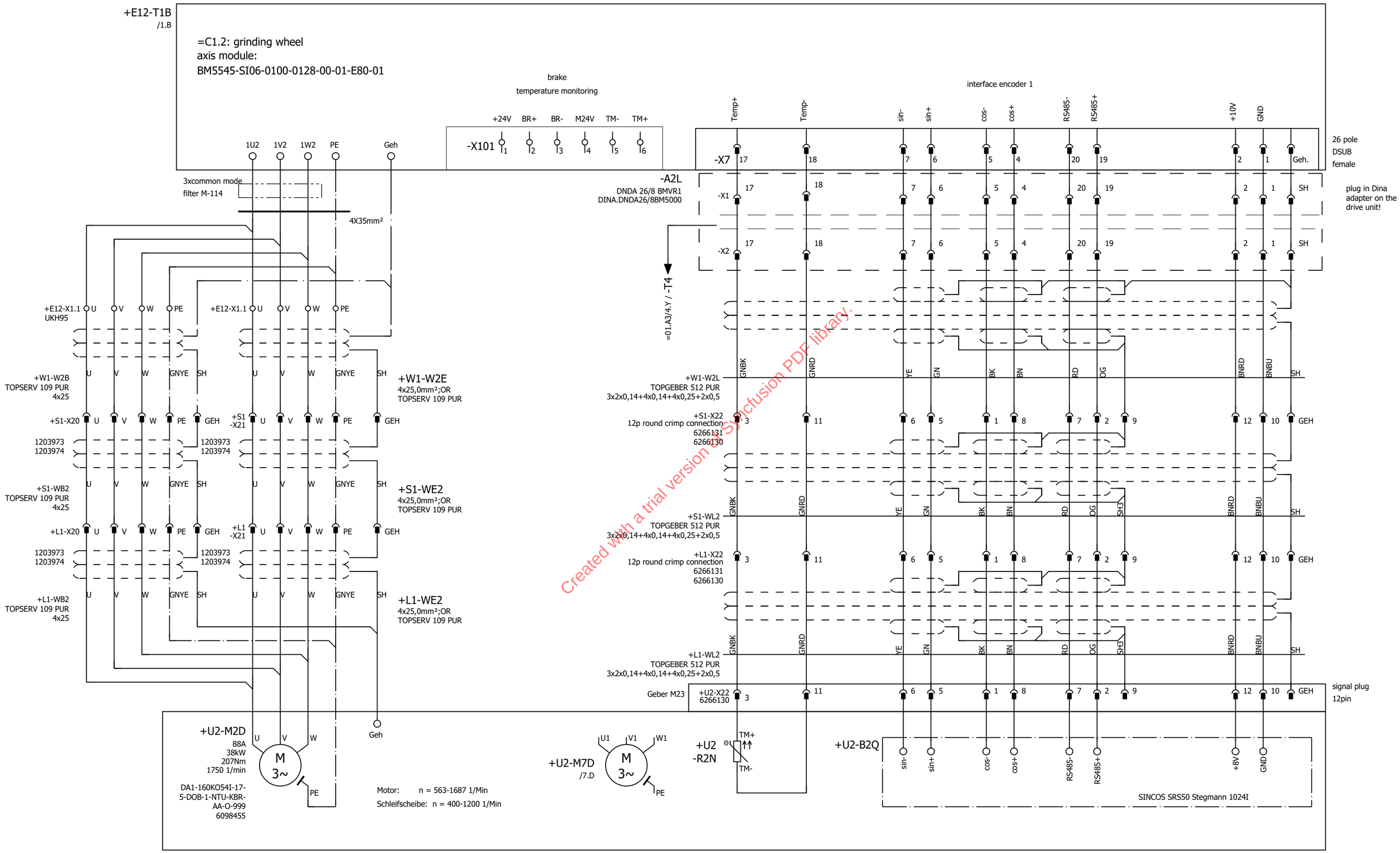


Created with a trial version of Syncfusion PDF library.

=.C1.1/20

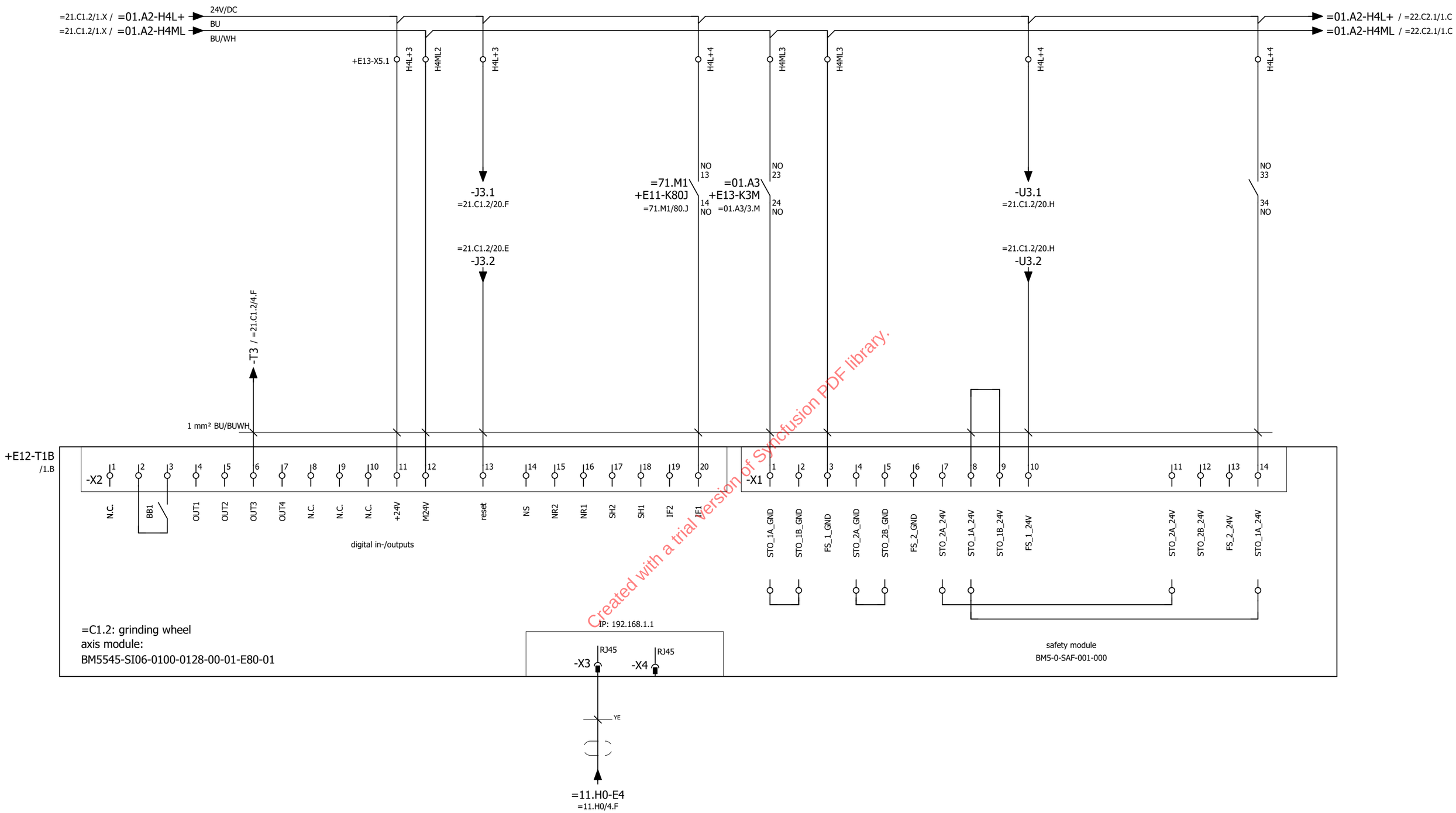
2

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	grinding wheel		= 21.C1.2	function page
			design.	PED						+ E11	1/20
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				73



Created with a trial version of Syncfusion PDF library.

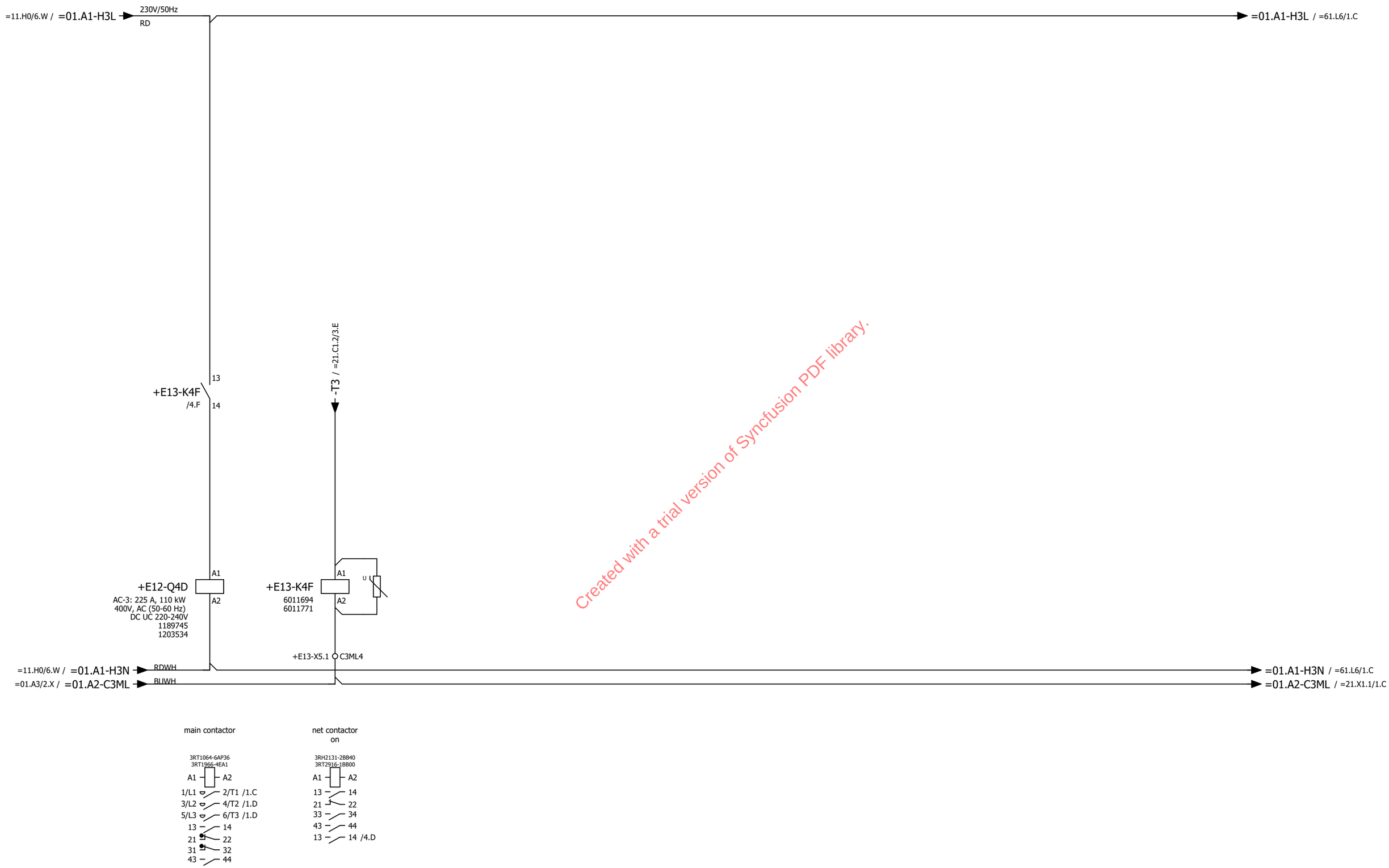
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	grinding wheel		= 21.C1.2 + E11	function page 2/20
			design.	PED					98290 WS450 KL x 5500 CNC Monolith	2953	page 74
			check.								
change	date	name	norm		originally.	created for.	created by.				



Created with a trial version of Syncfusion PDF library.

2 4

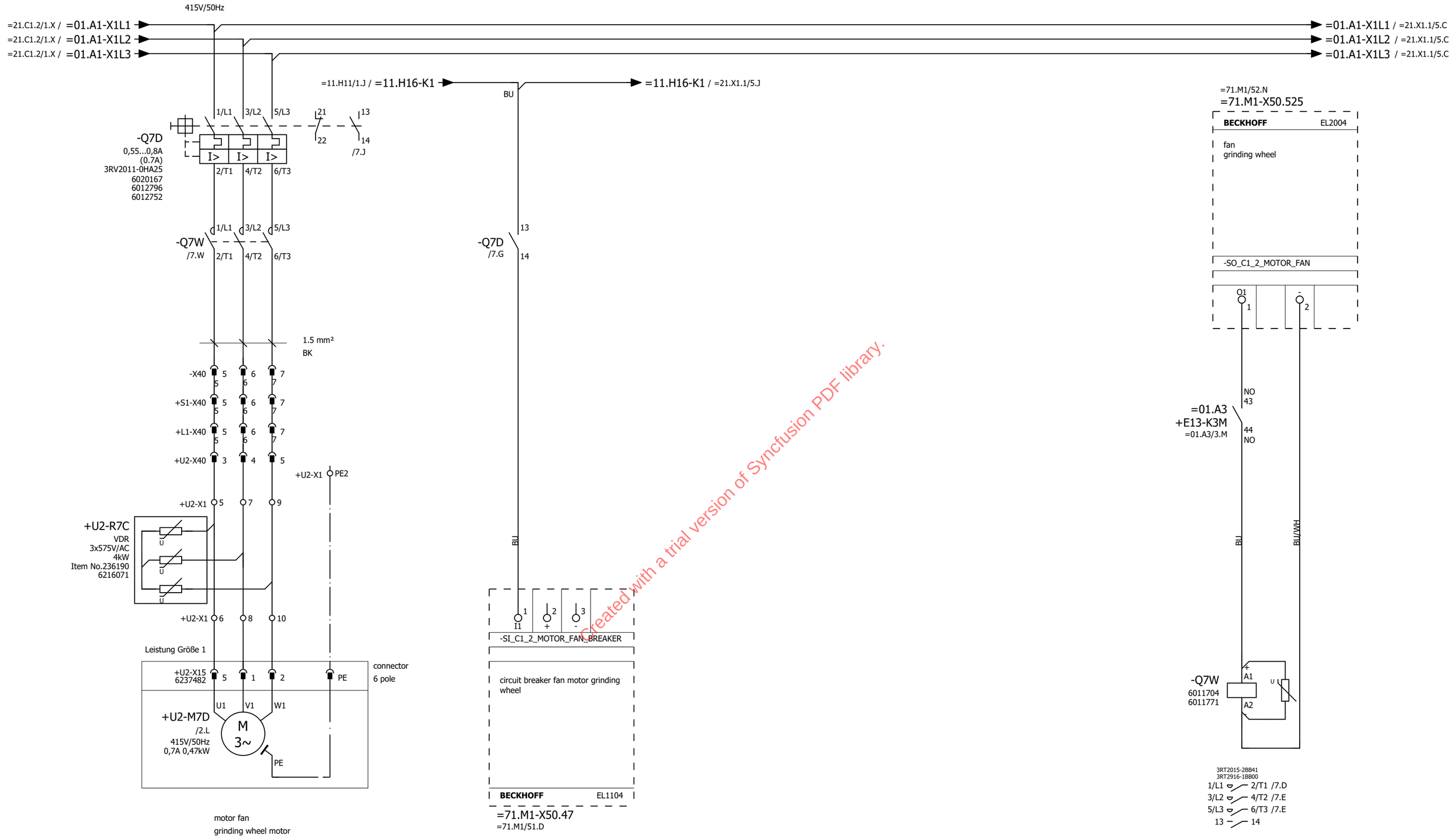
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	grinding wheel		= 21.C1.2	function page
			design.	PED					+ E11	3/20
			check.					98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.			75



Created with a trial version of Syncfusion PDF library.

3 7

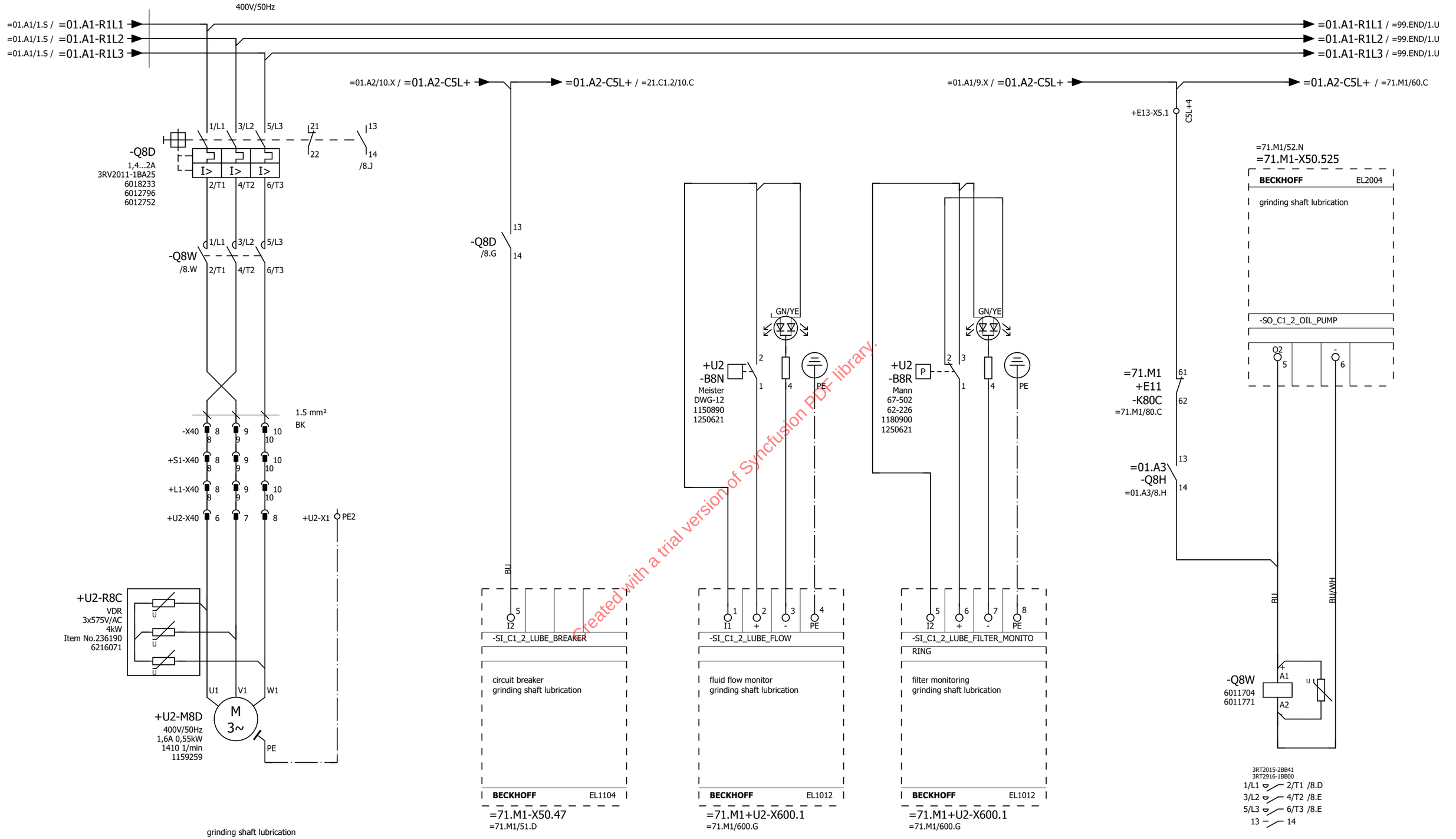
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	grinding wheel		= 21.C1.2	function page
			design.	PED						+ E11	4/20
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				76



Created with a trial version of Syncfusion PDF library.

4 8

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	grinding wheel fan		= 21.C1.2 / + E11	function page 7/20
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 77
change	date	name	norm		originally.	created for.	created by.				



Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	grinding shaft lubrication		= 21.C1.2	function page
			design.	PED						+ E11	8/20
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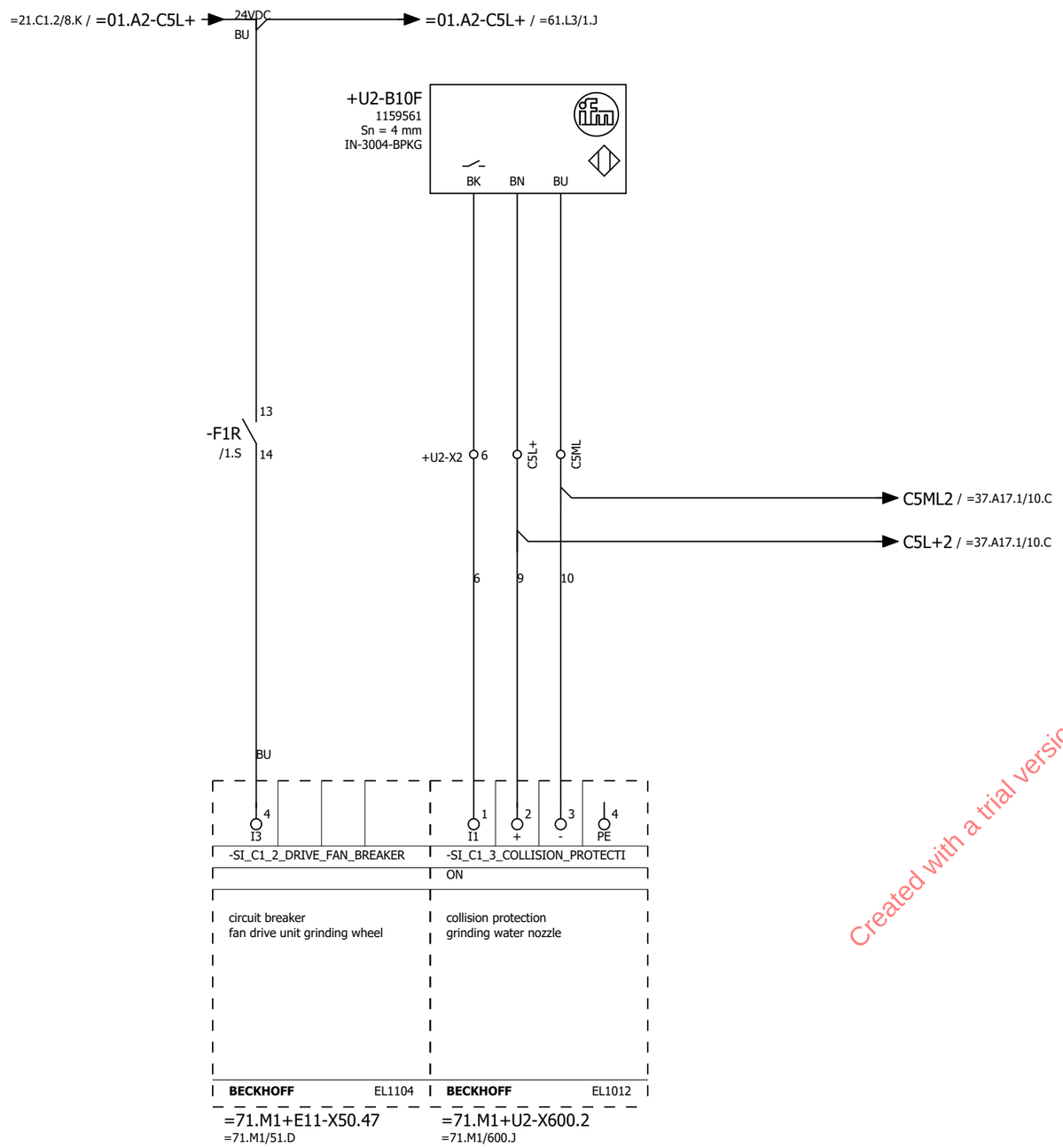
change	date	name	norm		originally.	created for.	created by.				78



Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	grinding wheel I/O		= 21.C1.2	function page
			design.	PED						+ E11	10/20
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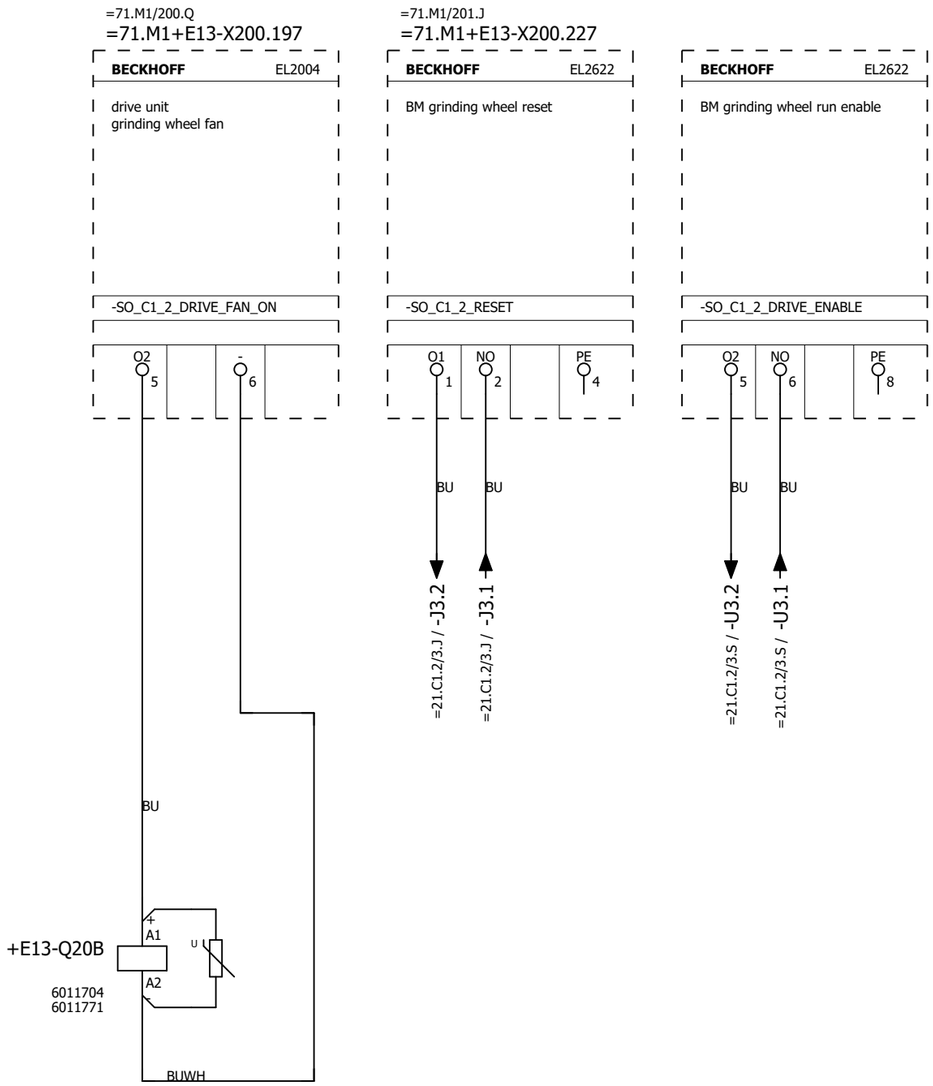
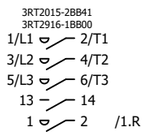
change	date	name	norm		originally.	created for.	created by.				79



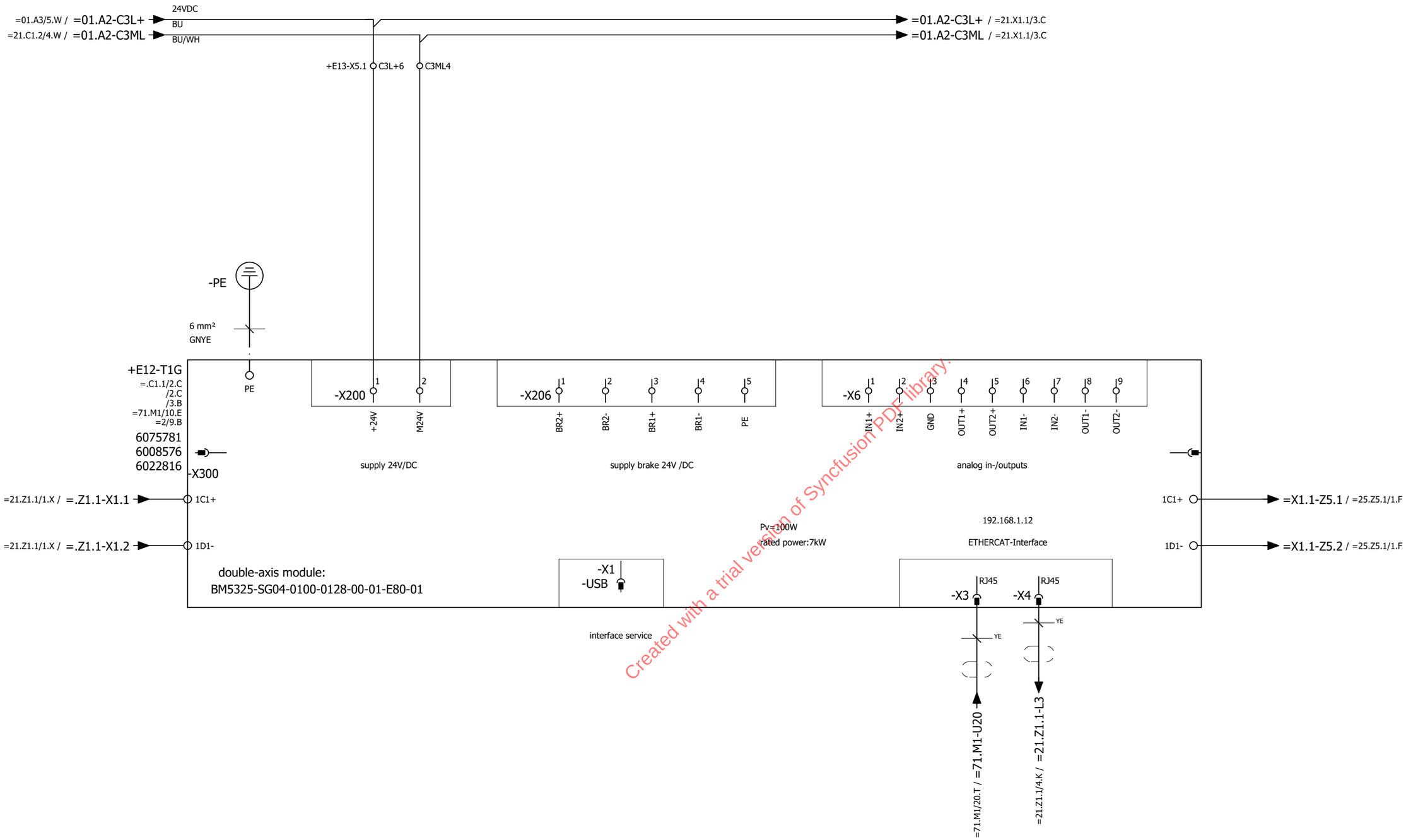


Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	grinding wheel I/O		= 21.C1.2
			design.	PED						+ E11
			check.						98290 WS450 KL x 5500 CNC Monolith	2953
change	date	name	norm		originally.	created for.	created by.			

function page 20/20

page 80



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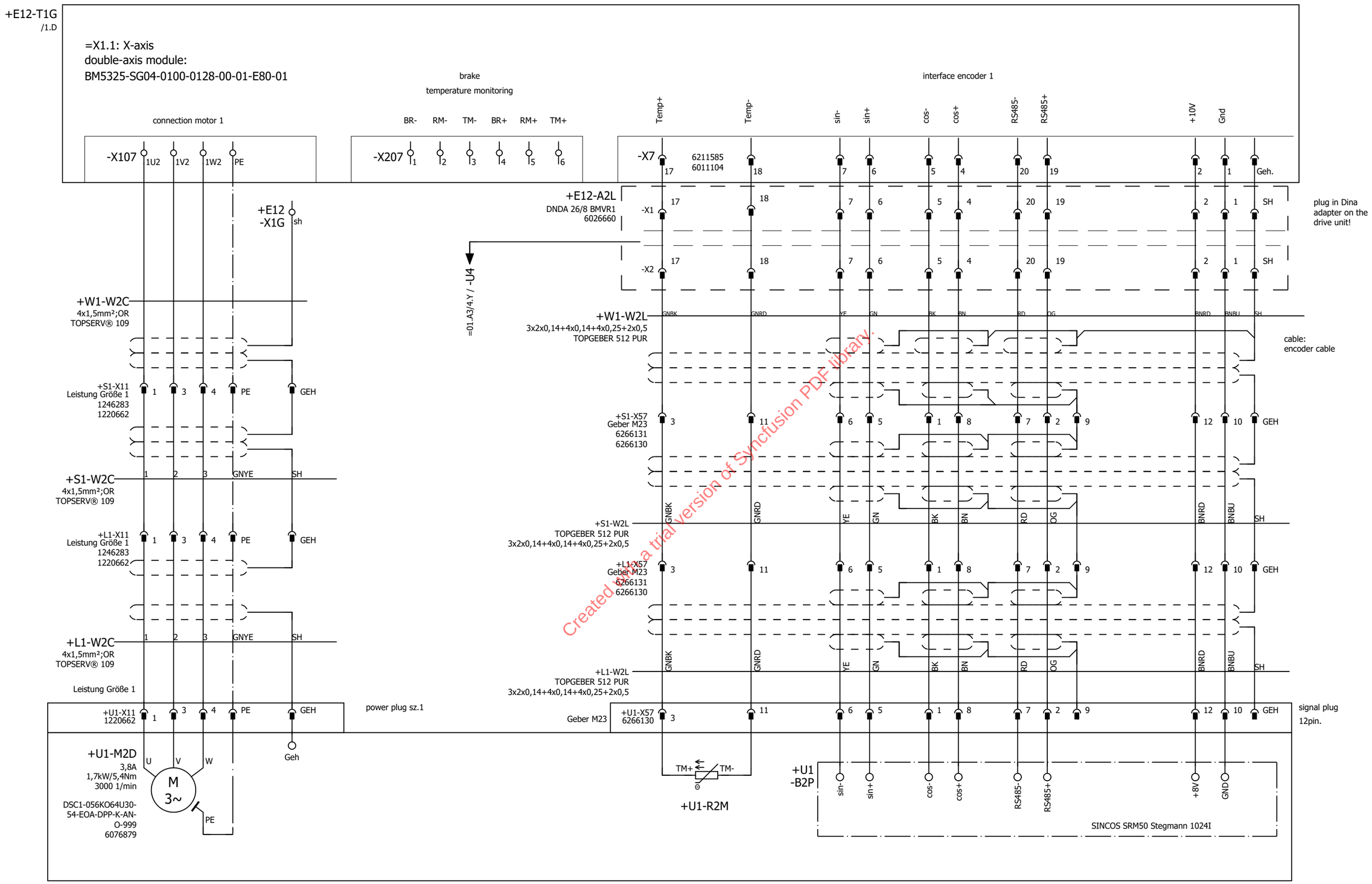
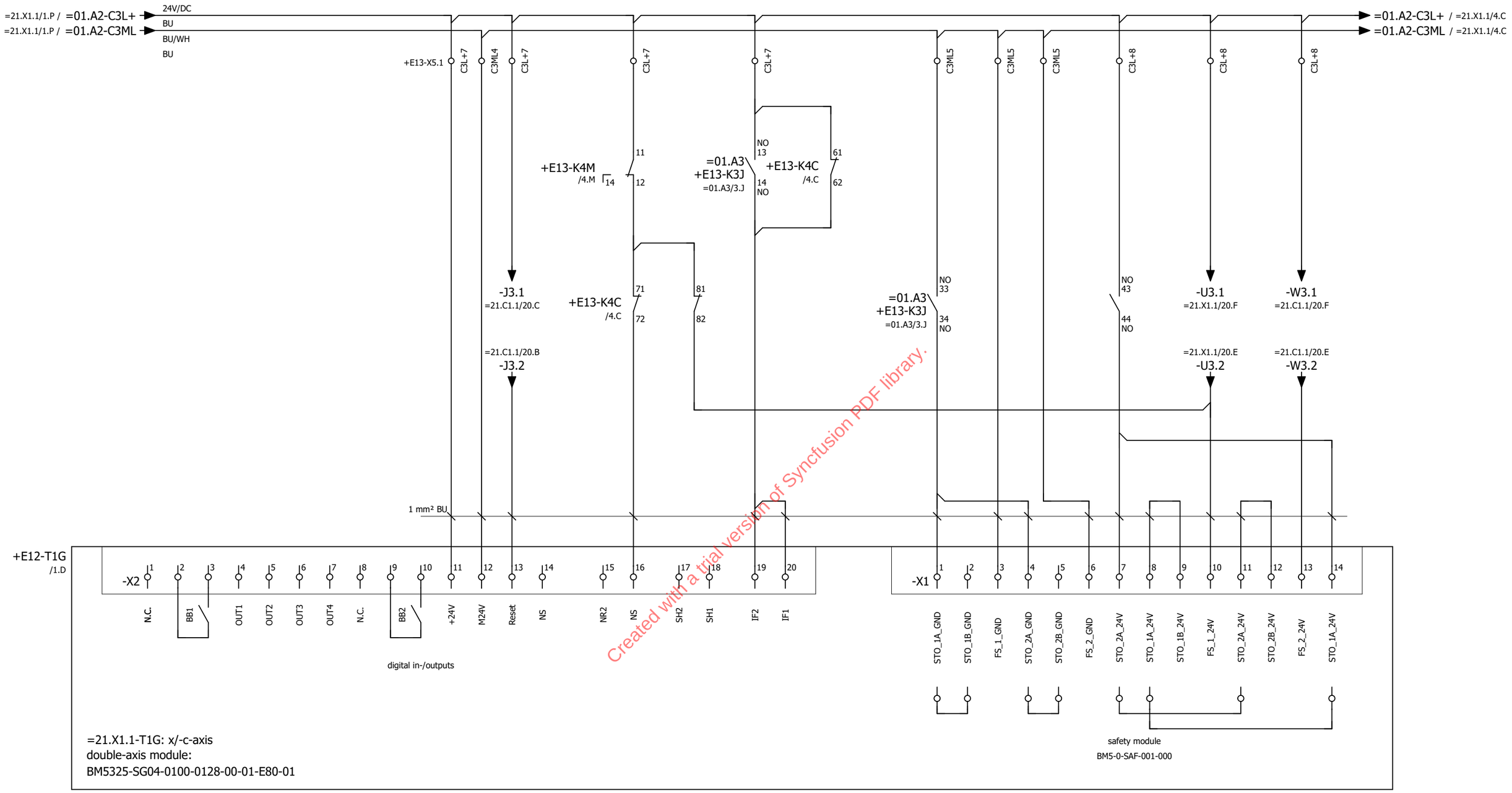
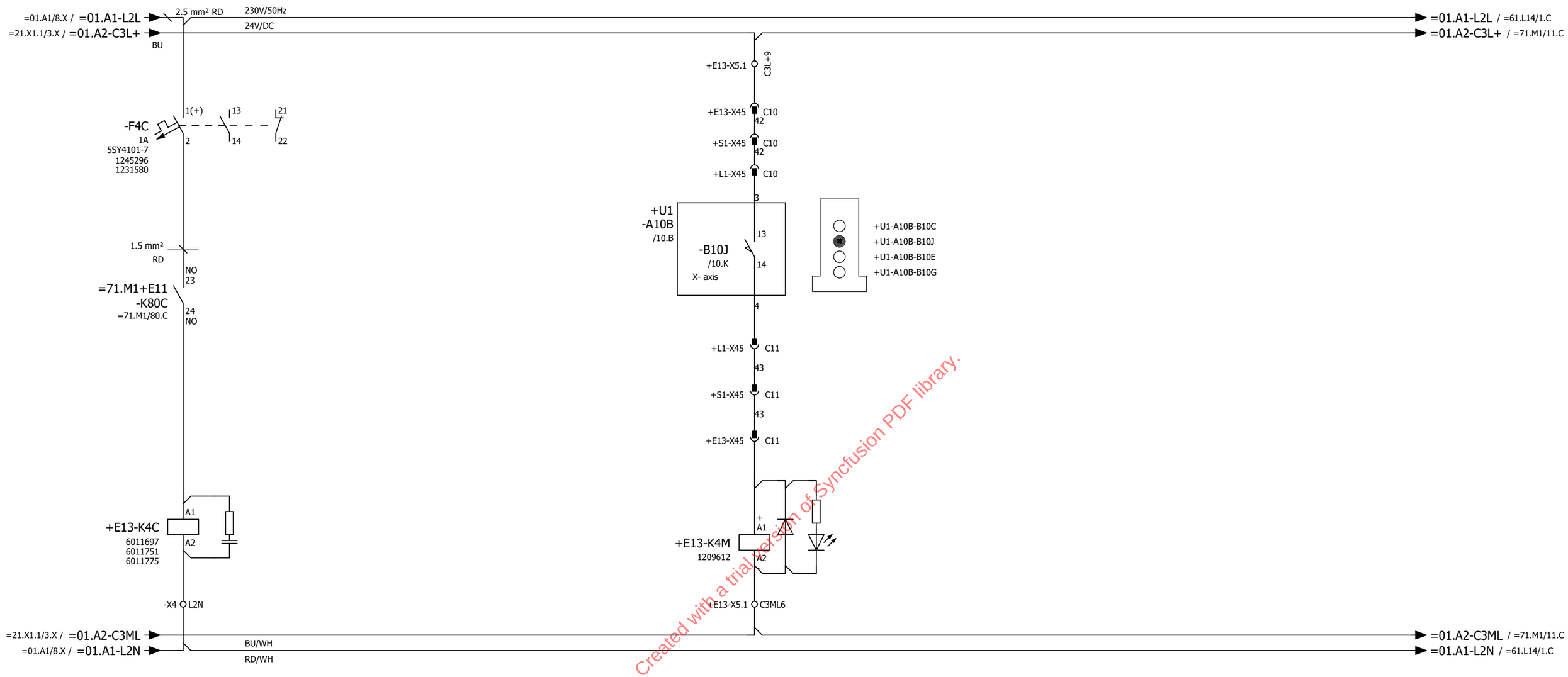


Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	X- axis		= 21.X1.1 + E11	function page 2/20
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 82
change	date	name	norm		originally.	created for.	created by.				



Created with a trial version of Syncfusion PDF library.



Created with a trial version of Syncfusion PDF library.

emergency retreat
X-axis when voltage failure

controller
inhibit X-axis
in case of voltage failure

3RH2140-2AP00
3RH2911-2GA04

A1	A2
13	14
23	24
33	34
43	44
51	52
61	62 /3.P
71	72 /3.L
81	82 /3.L

49.52.9.024.5050

14	
12	11 /3.K
24	
22	21

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	X-axis emergency retreat		= 21.X1.1 + E11	function page 4/20
			design.	PED							
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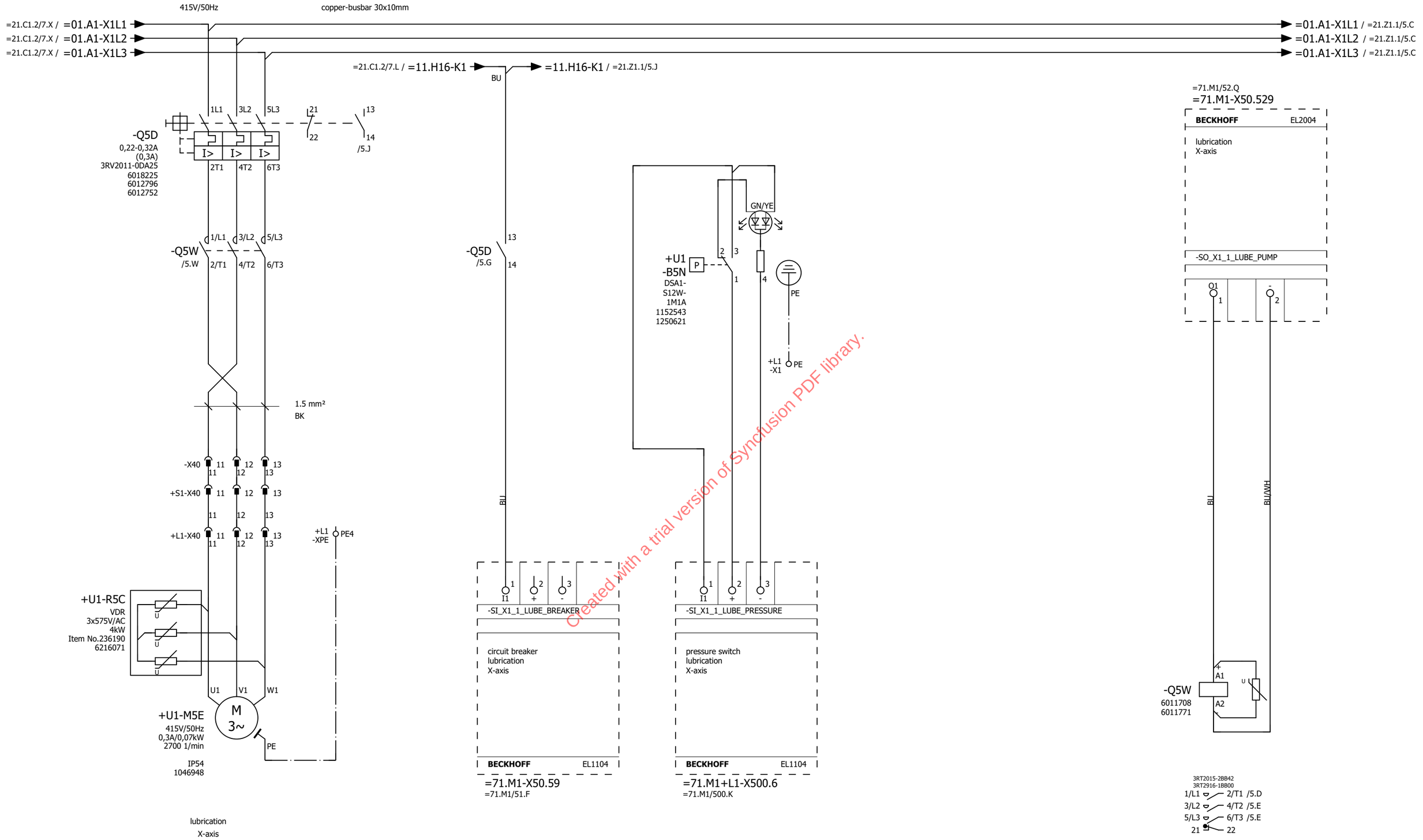
change	date	name	norm		originally.	created for.	created by.				



Created with a trial version of Syncfusion PDF library.

4 10

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			design.	PED						+ E11	5/20
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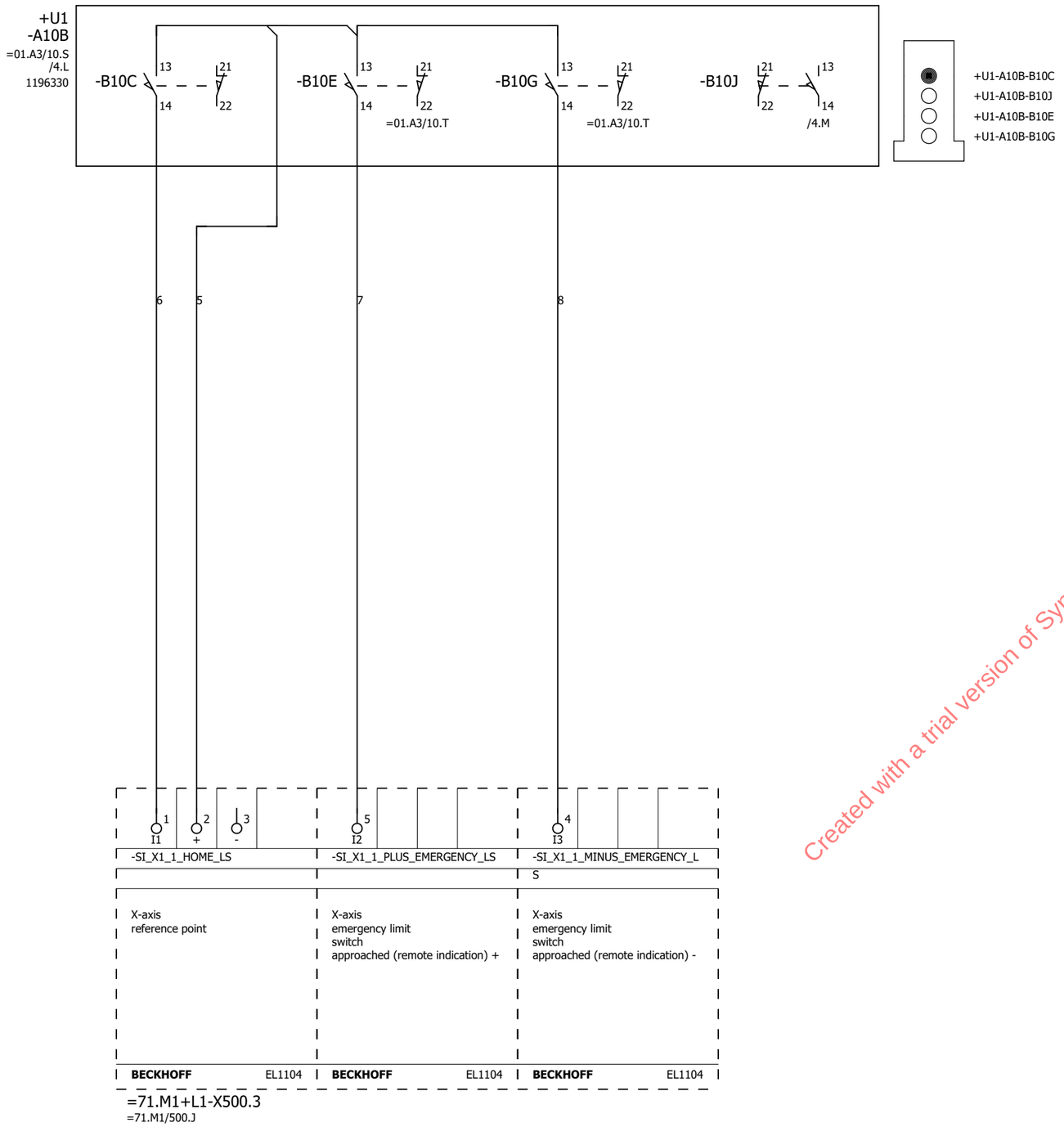
change	date	name	norm		originally.	created for.	created by.				85



Created with a trial version of Syncfusion PDF library.

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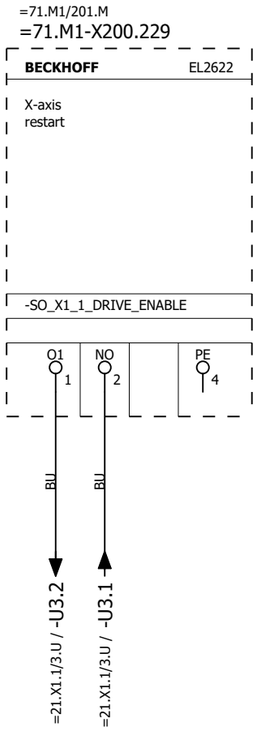
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	X-axis I/O		= 21.X1.1	function page
			design.	PED						+ E11	10/20
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				86



Created with a trial version of Syncfusion PDF library.

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			design.	PED						+ E13	20/20
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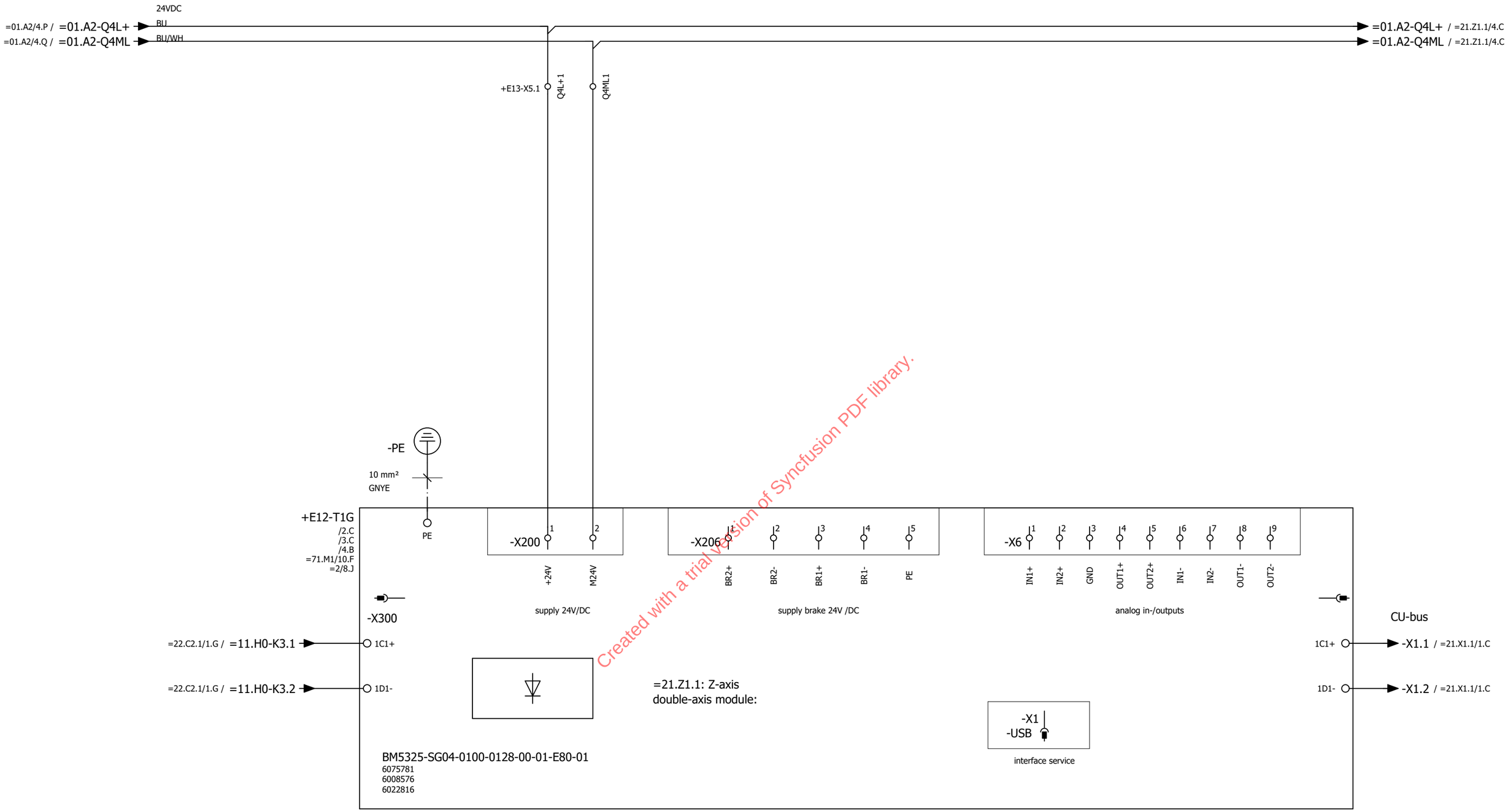
change	date	name	norm		originally.	created for.	created by.				87



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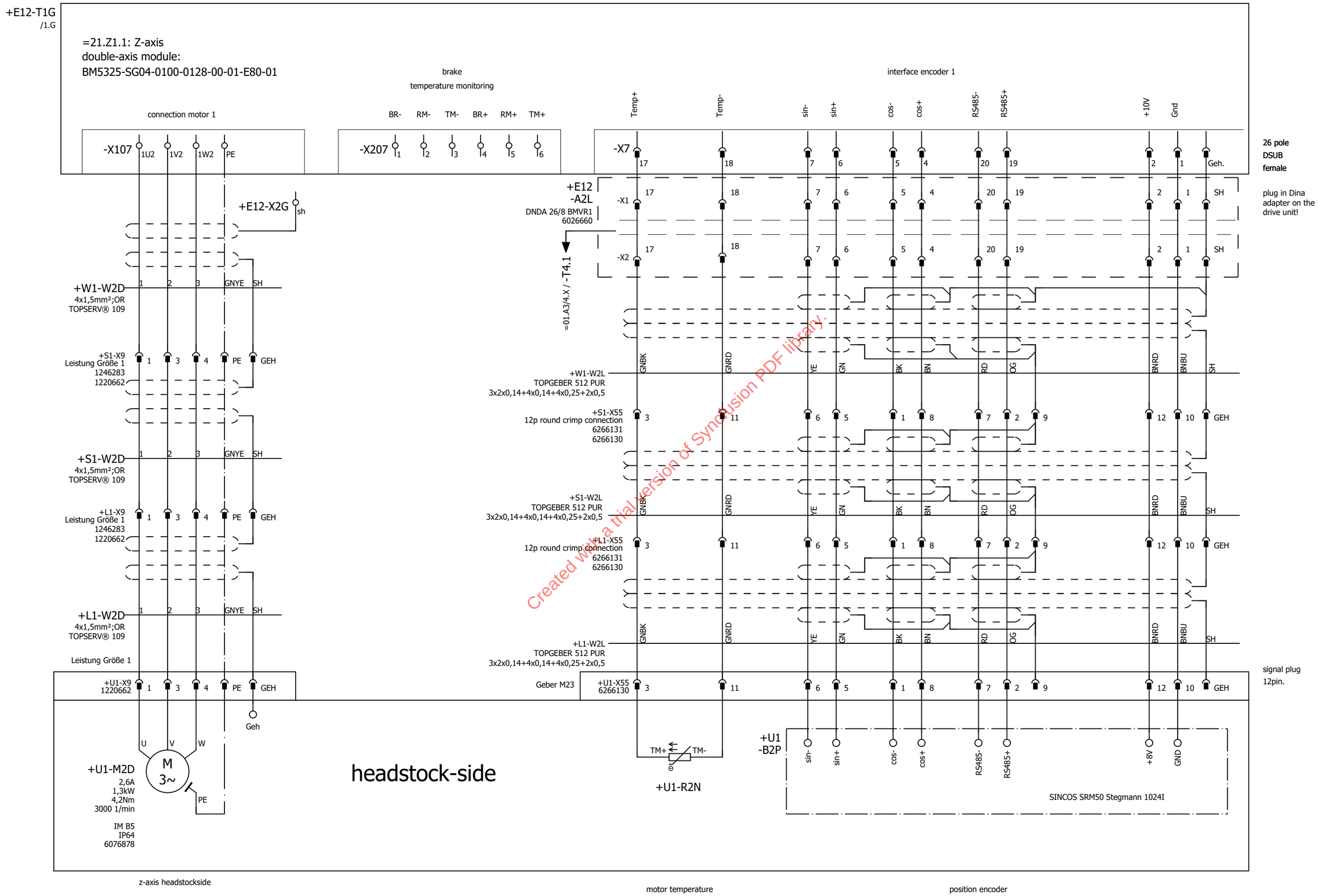

Created with a trial version of Syncfusion PDF library.

1 3

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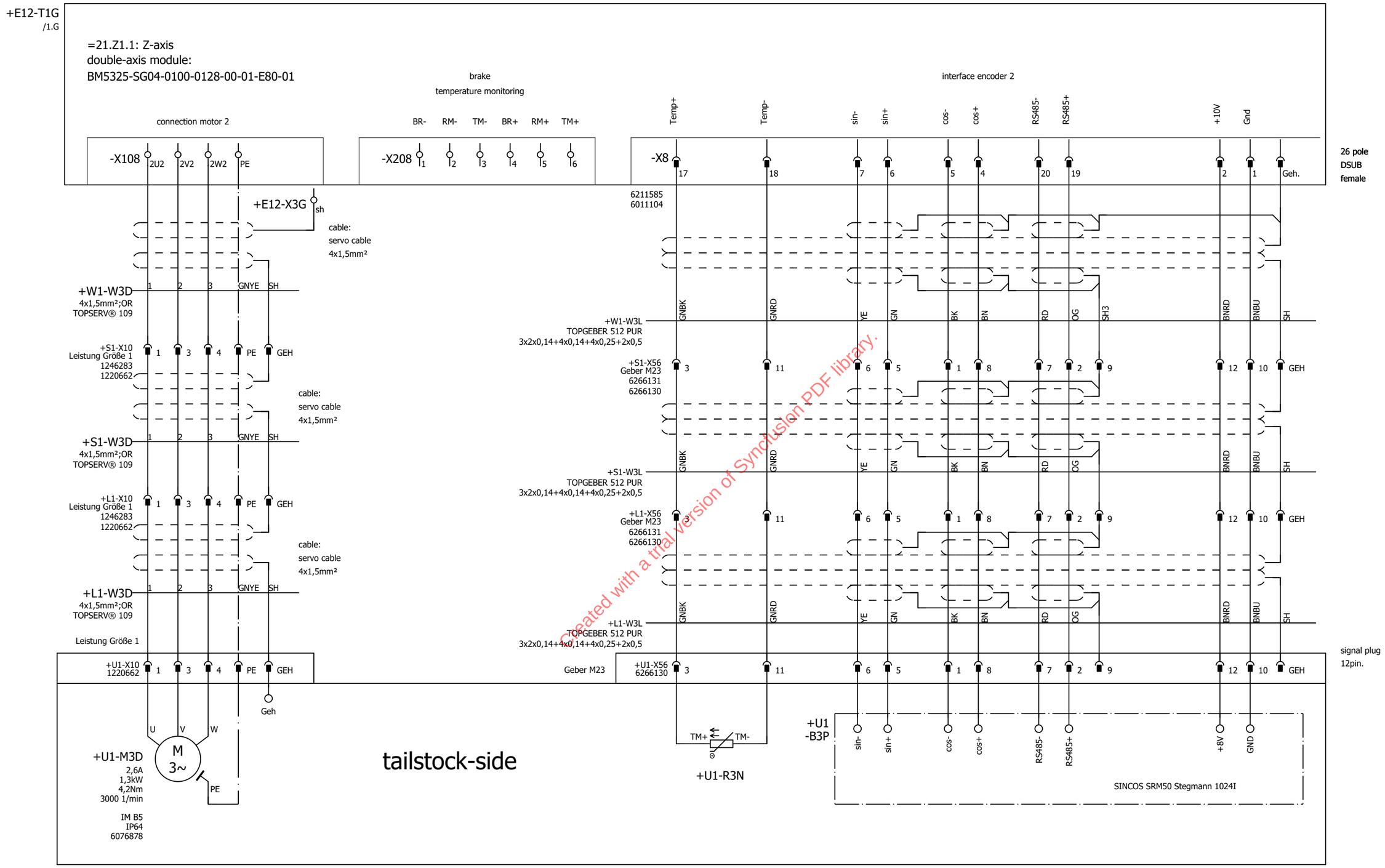
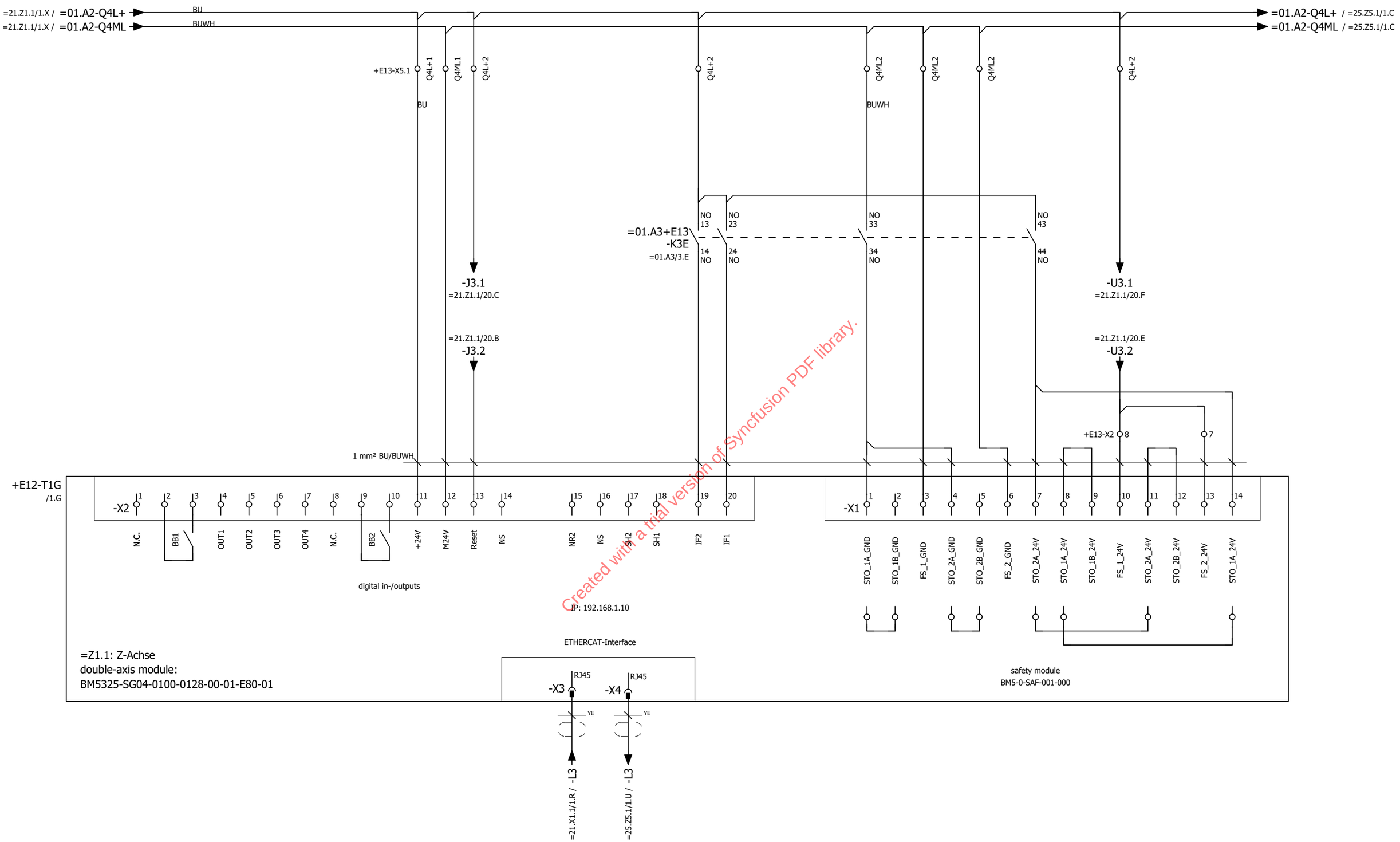
			design.	PED					+ E11	2/20
			check.					98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.			89



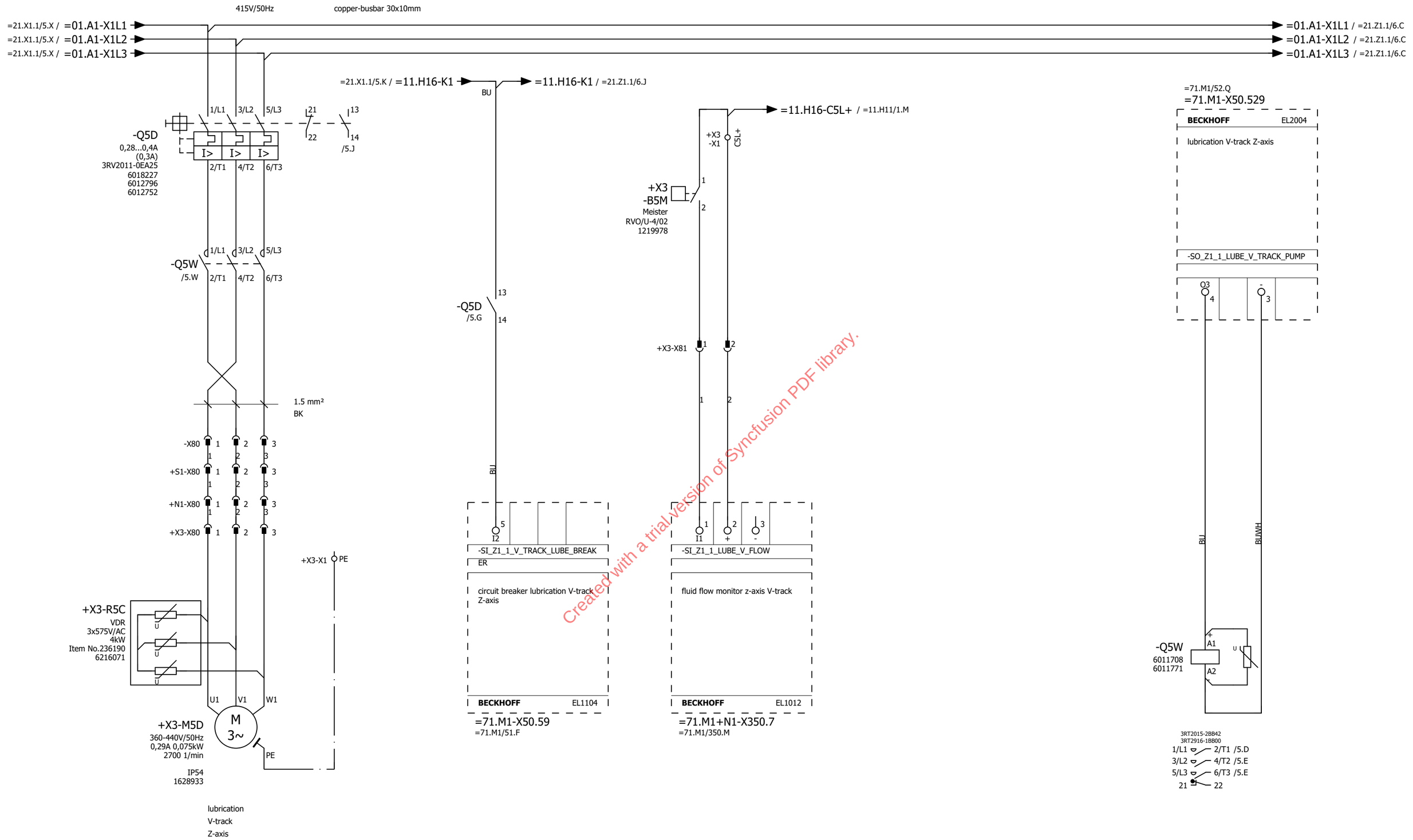
Created with a trial version of Synchusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	z-axis motor tailstockside		= 21.Z1.1 + E11	function page 3/20
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 90
change	date	name	norm		originally.	created for.	created by.				



Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	Z-axis		= 21.Z1.1 + E11	function page 4/20
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 91
change	date	name	norm		originally.	created for.	created by.				



Created with a trial version of Syncfusion PDF library.

4 6

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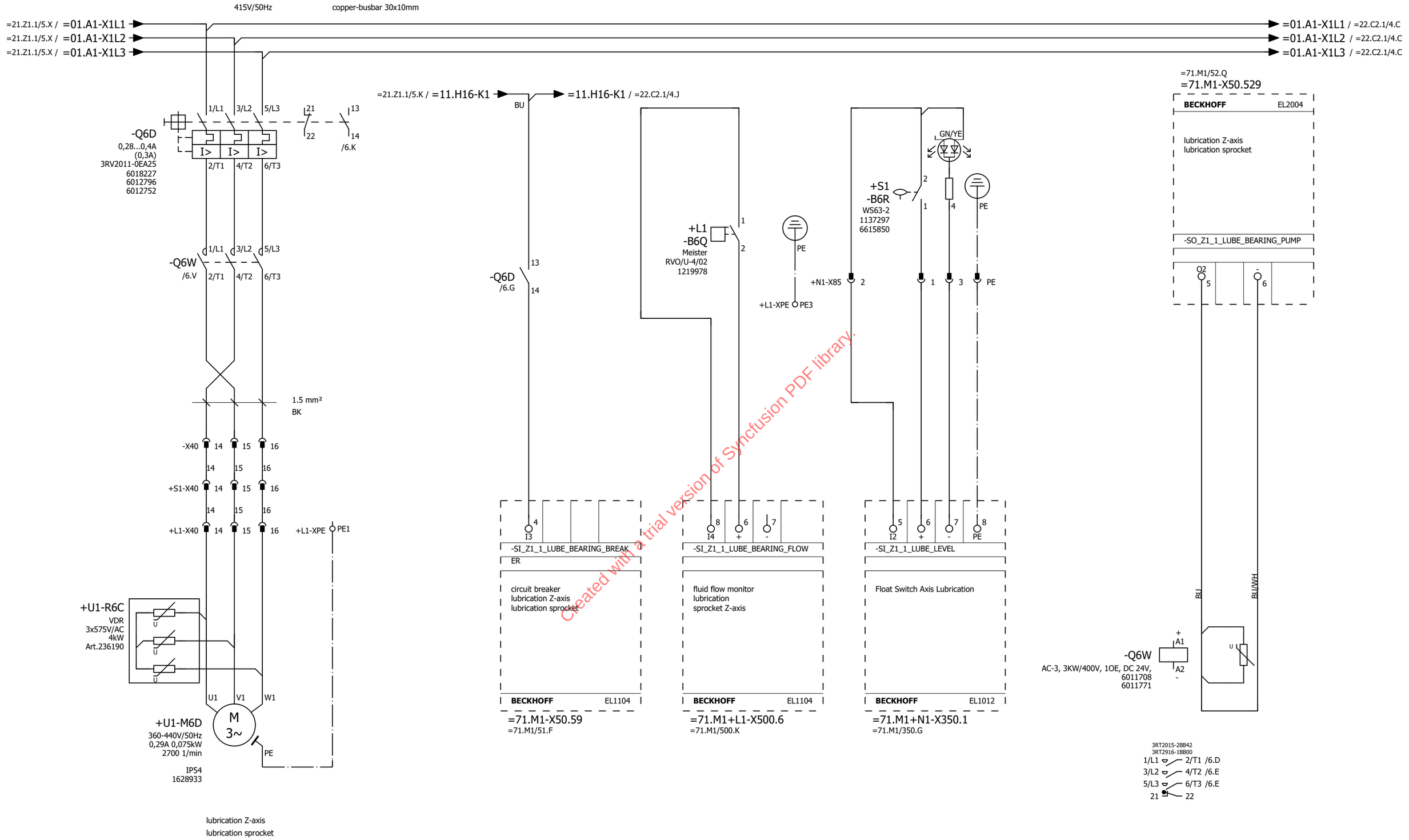
change	date	name	norm		originally.	created for.	created by.			

function page 5/20

page 92



Created with a trial version of Syncfusion PDF library.

5 10

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	Z-axis lubrication		= 21.Z1.1	function page
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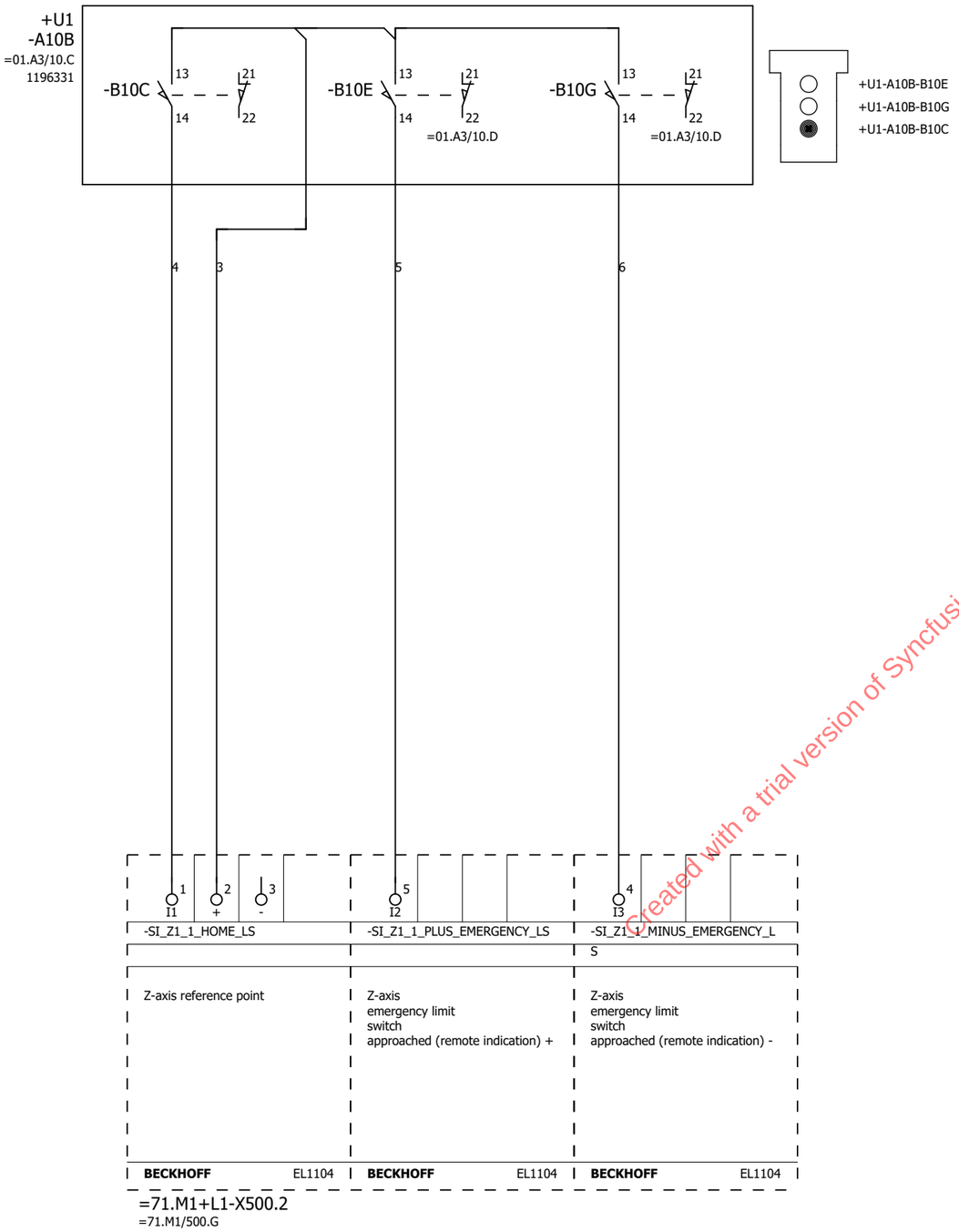
change	date	name	norm		originally.	created for.	created by.			93



Created with a trial version of Syncfusion PDF library.

6

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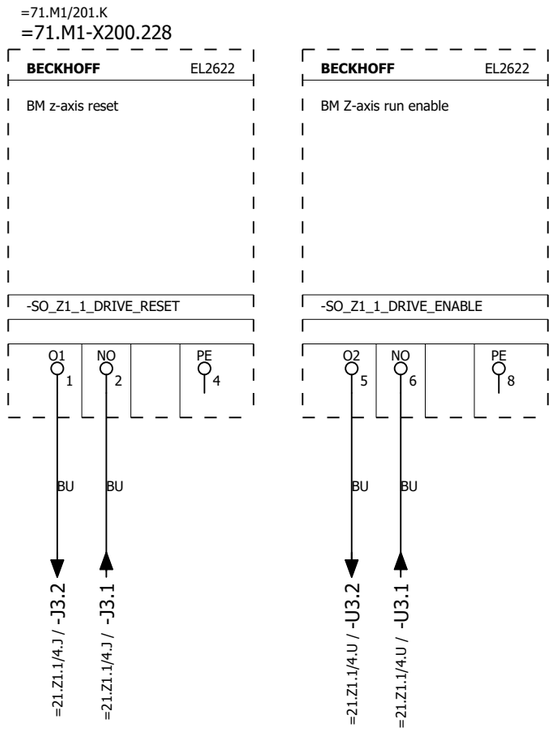
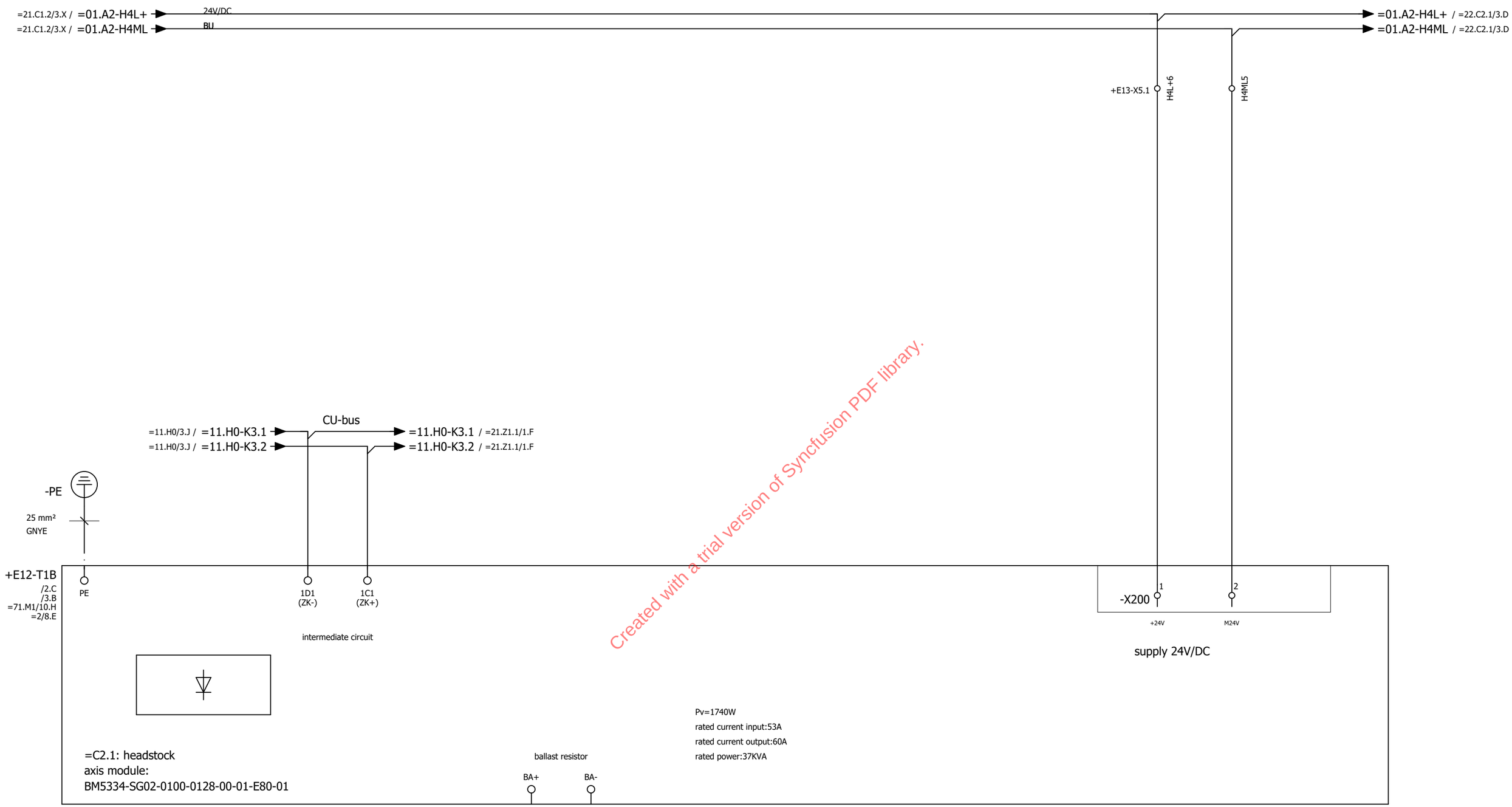
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	Z-axis I/O		= 21.Z1.1 + E11	function page 10/20
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 94
change	date	name	norm		originally.	created for.	created by.				



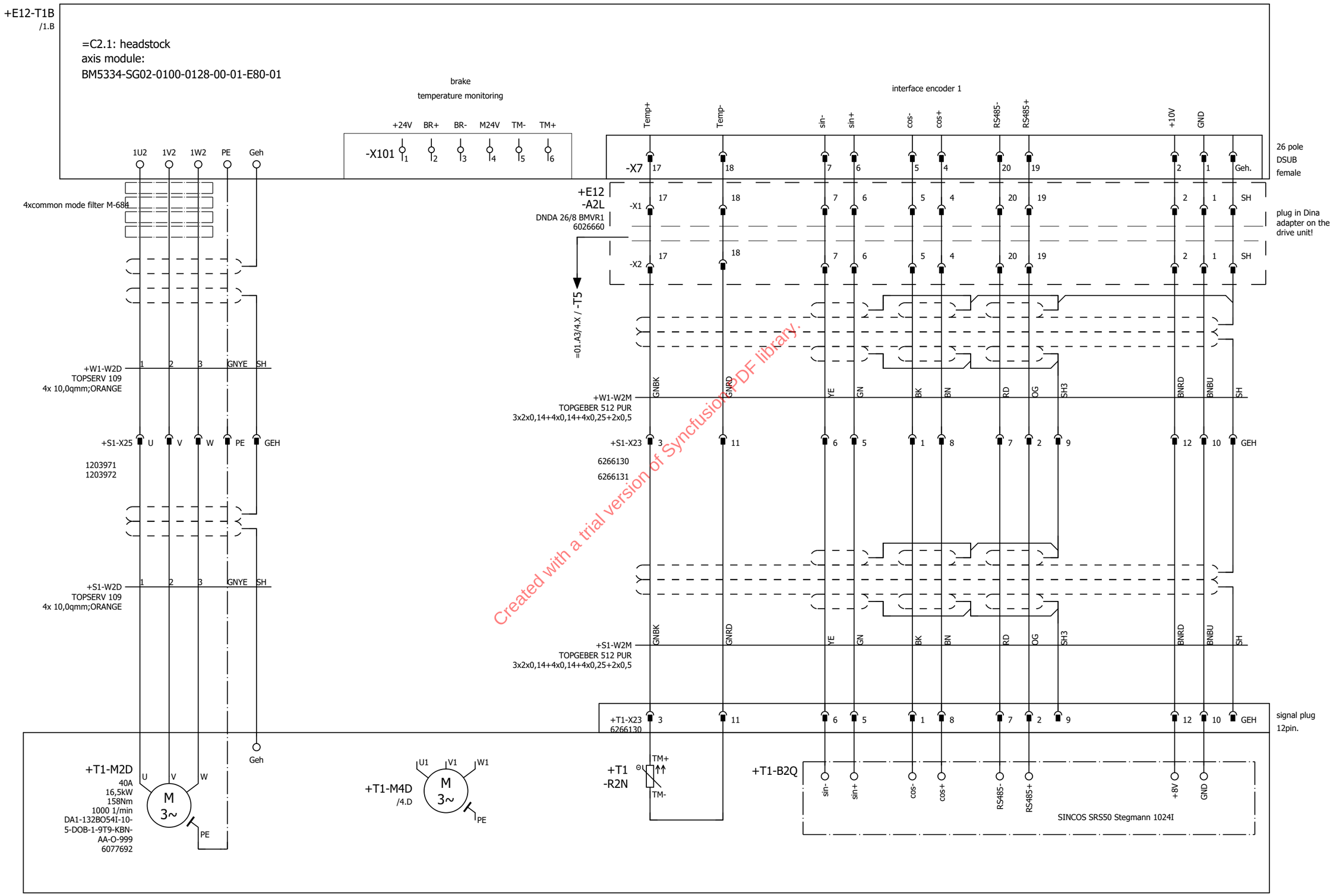
Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	Z-axis I/O		= 21.Z1.1	function page
			design.	PED						+ E13	20/20
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				95



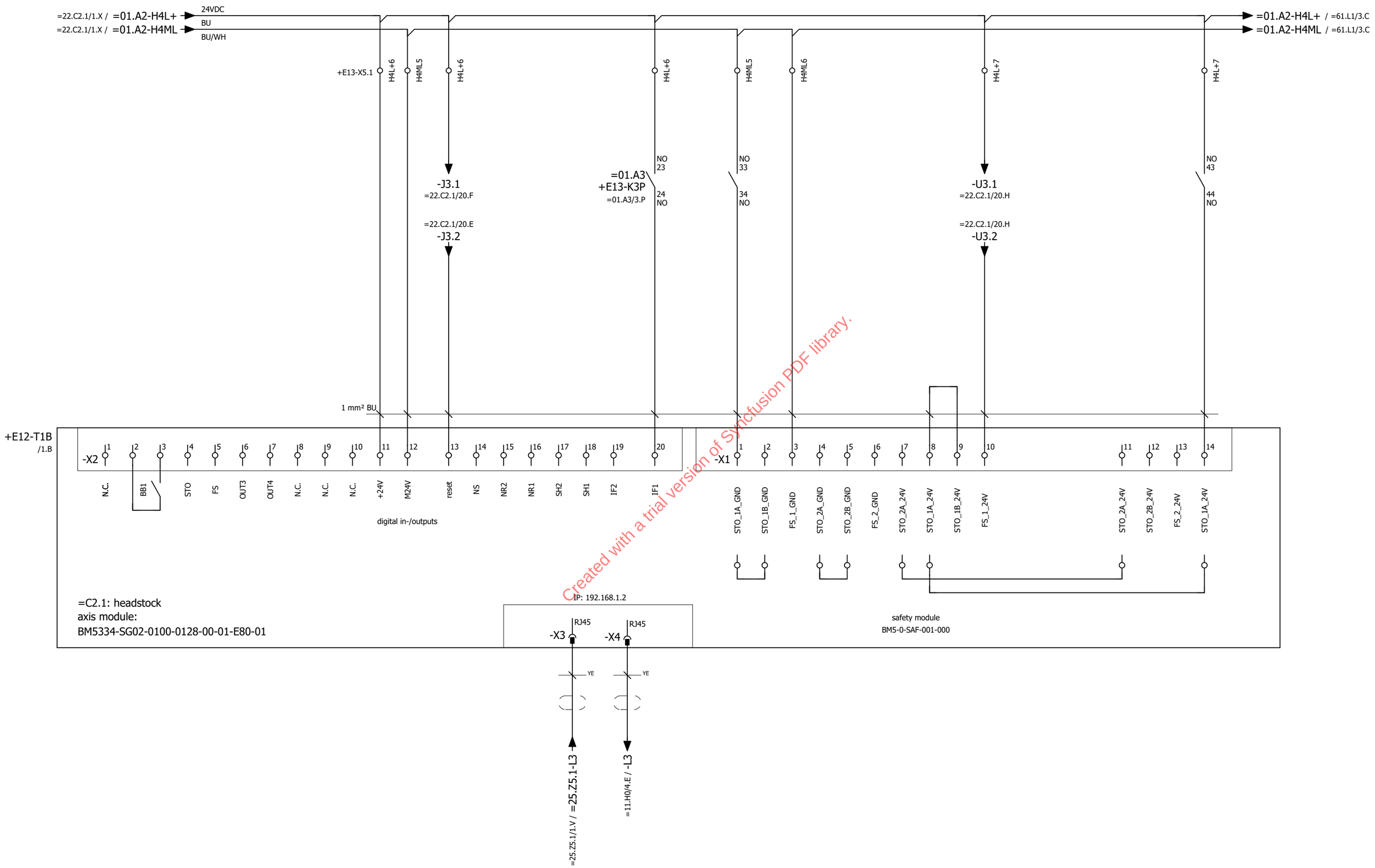
Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	headstock		= 22.C2.1	function page
			design.	PED						+ E11	1/20
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				96



Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	headstock		= 22.C2.1	function page
			design.	PED					+ E11	2/20
			check.					98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.			97



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			design.	PED							
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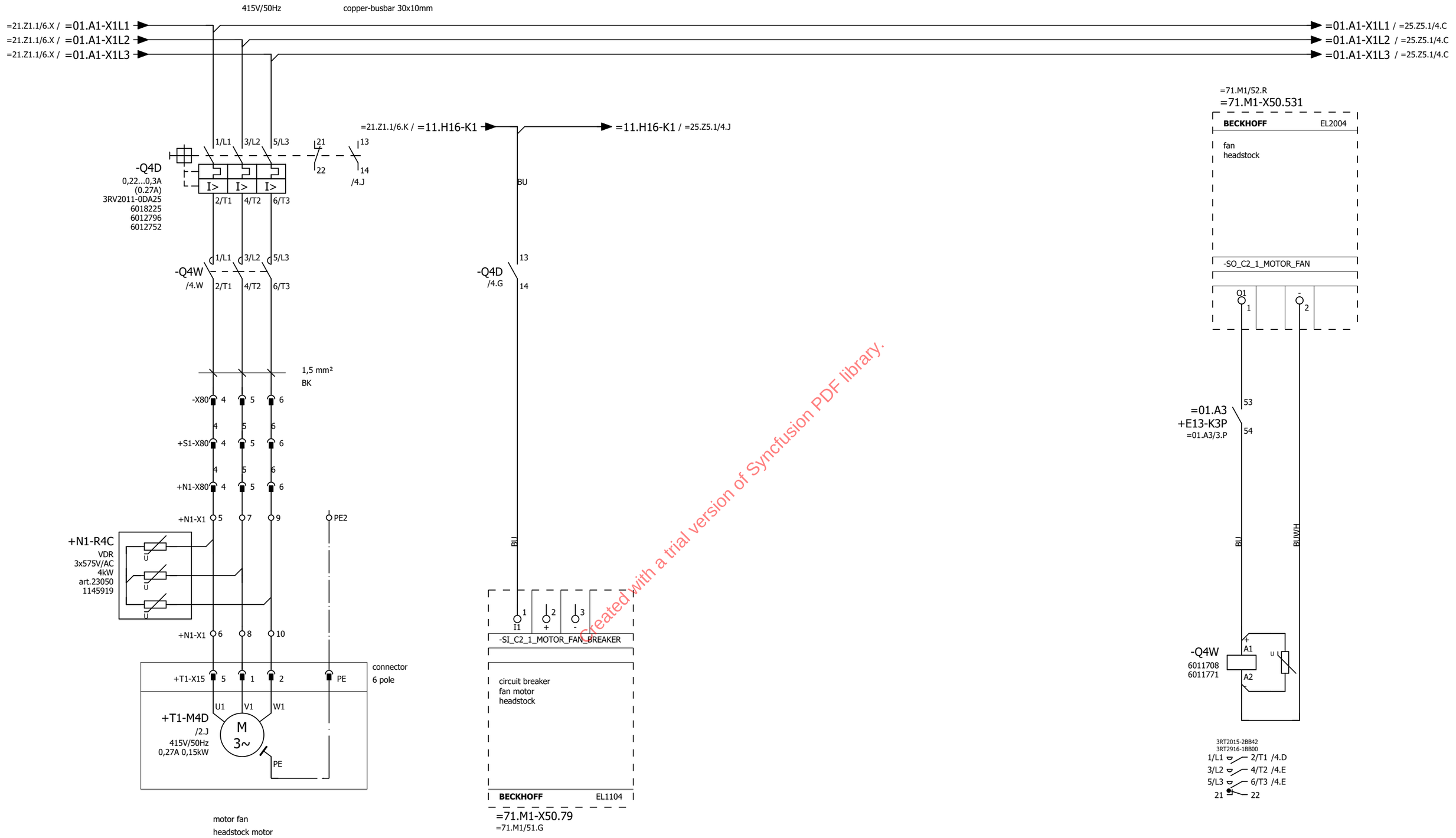
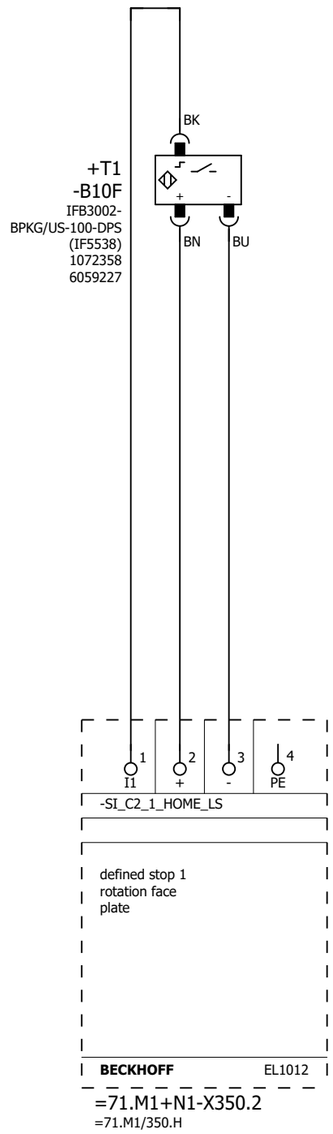
change	date	name	norm		originally.	created for.	created by.				



Created with a trial version of Syncfusion PDF library.

3 10

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	headstock fan		= 22.C2.1	function page
			design.	PED						+ E11	4/20
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				99

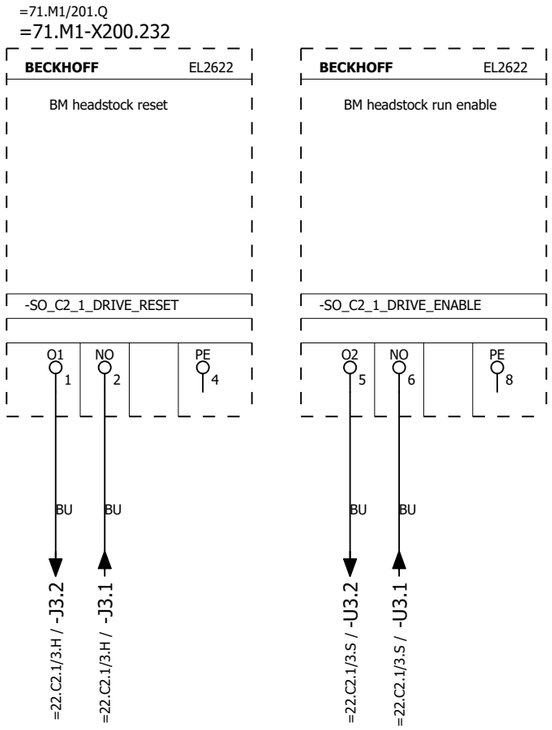


Created with a trial version of Syncfusion PDF library.

4

20

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	headstock I/O		= 22.C2.1	function page
			design.	PED						+ S1	10/20
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				100



Created with a trial version of Syncfusion PDF library.

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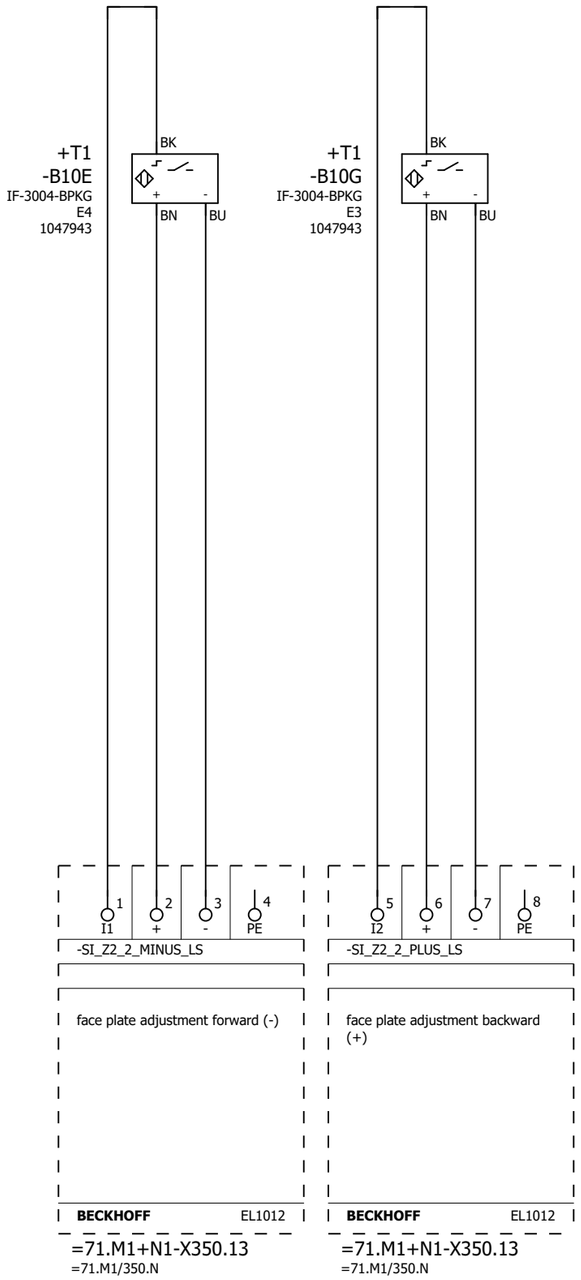
			design.	PED						+ E13	20/20
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				101



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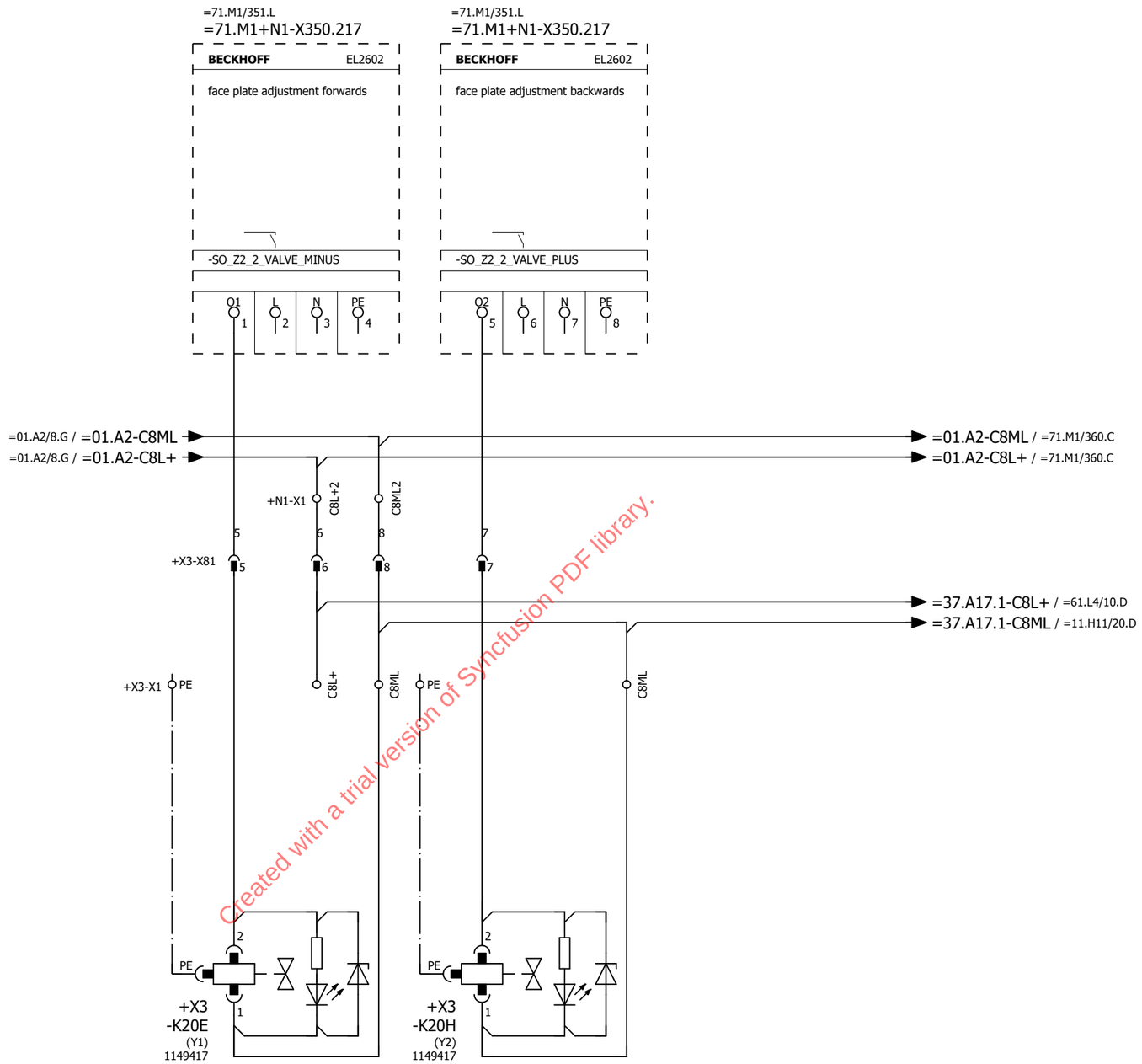
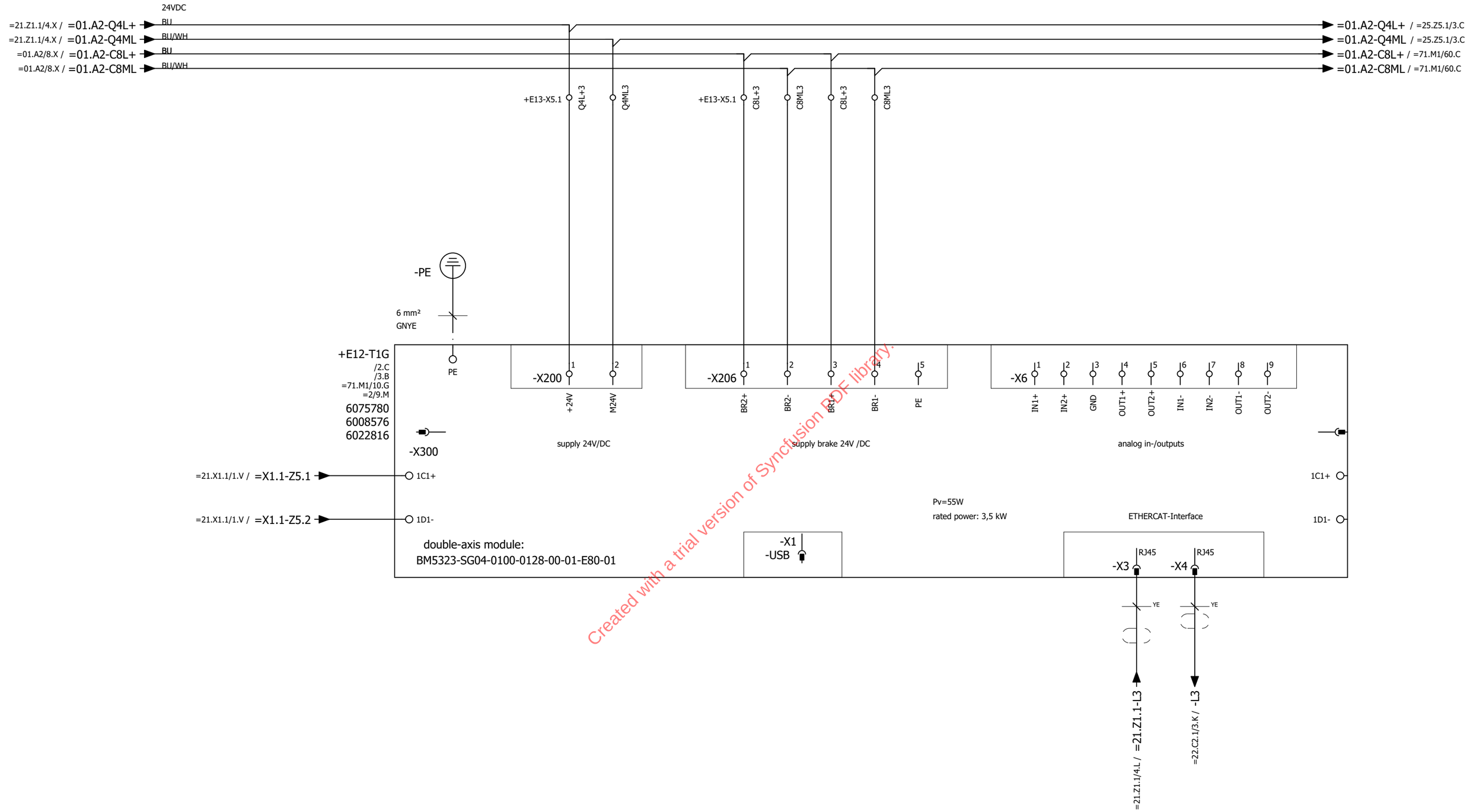
			design.	PED						+ T1	10/20
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				102



Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	face plate adjustment I/O		= 22.Z2.2 + T1	function page 20/20
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 103
change	date	name	norm		originally.	created for.	created by.				



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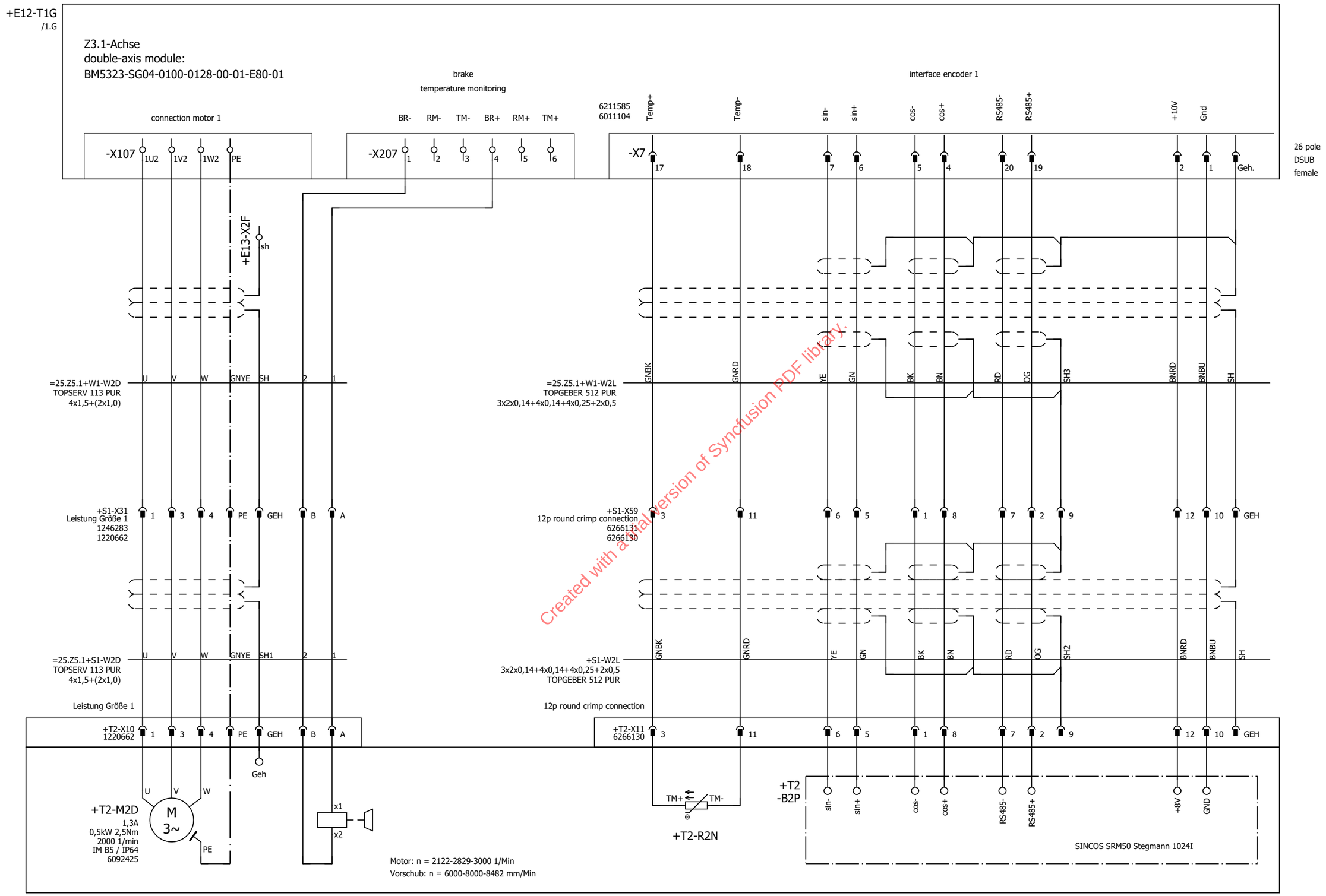
=22.Z2.2/20

2

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	tailstock Z-adjustment		= 25.Z5.1 + E11	function page 1/21
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 104
change	date	name	norm		originally.	created for.	created by.				



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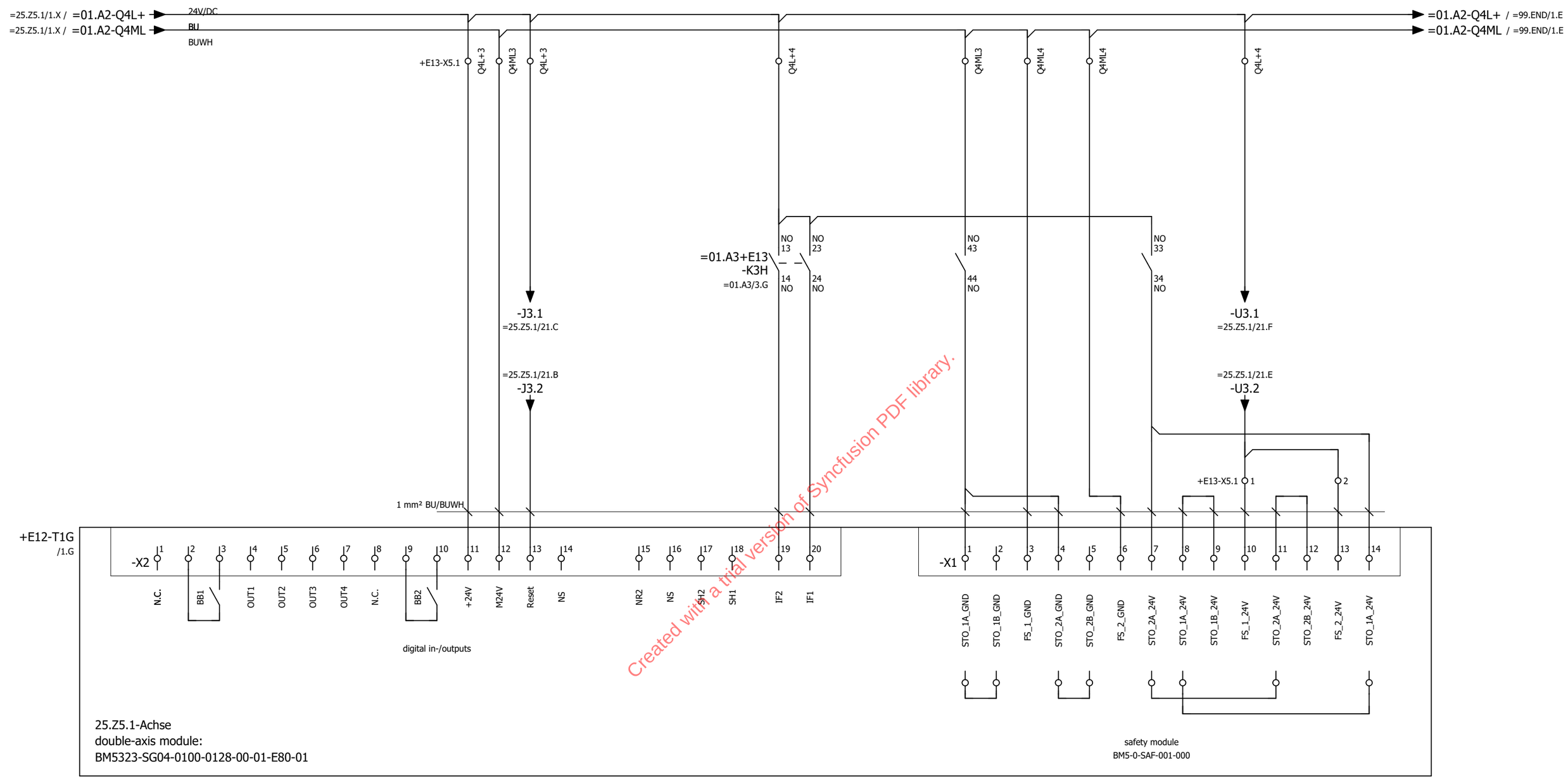
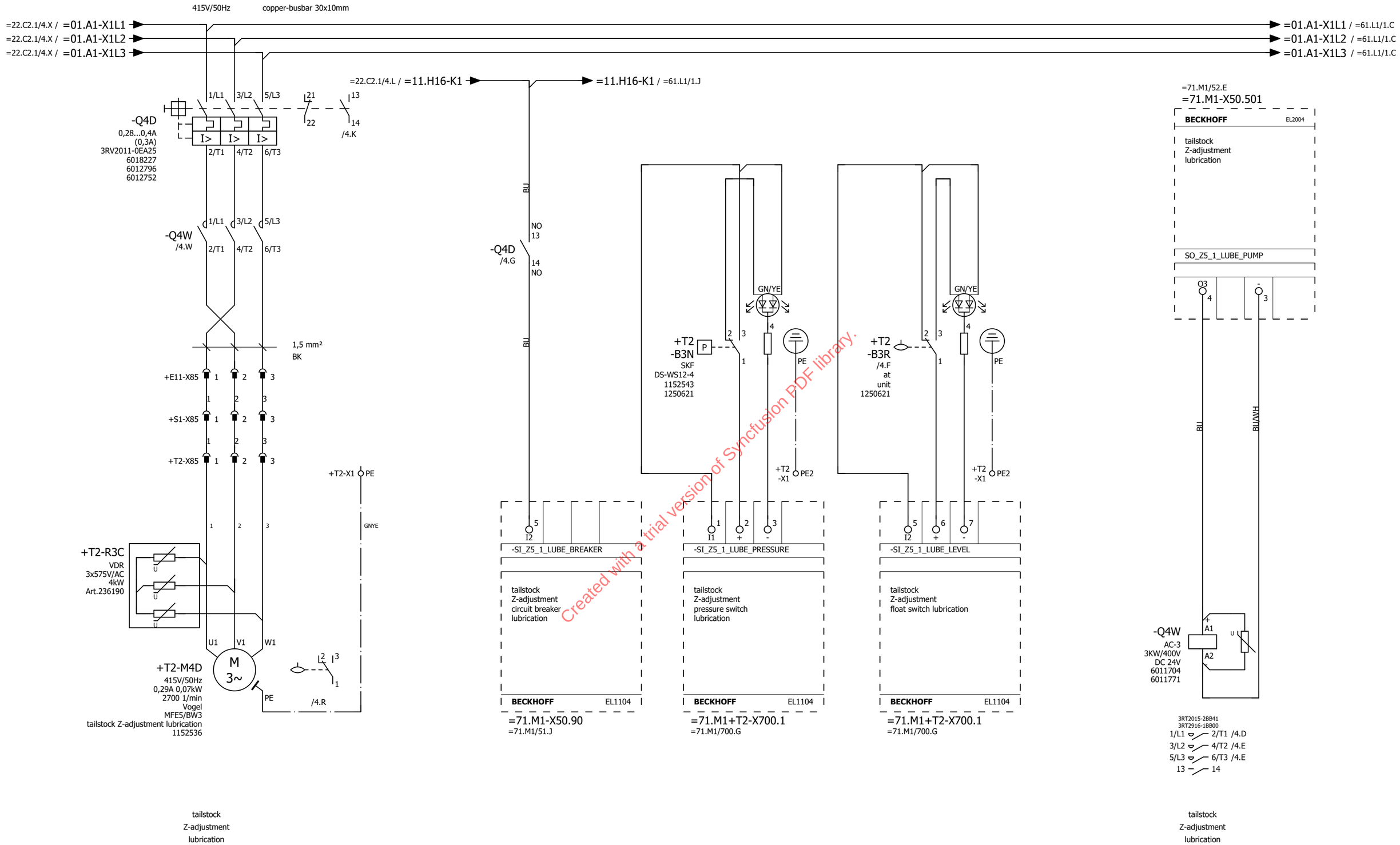
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	tailstock Z-adjustment		= 25.Z5.1	function page
			design.	PED						+ E11	2/21
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				105



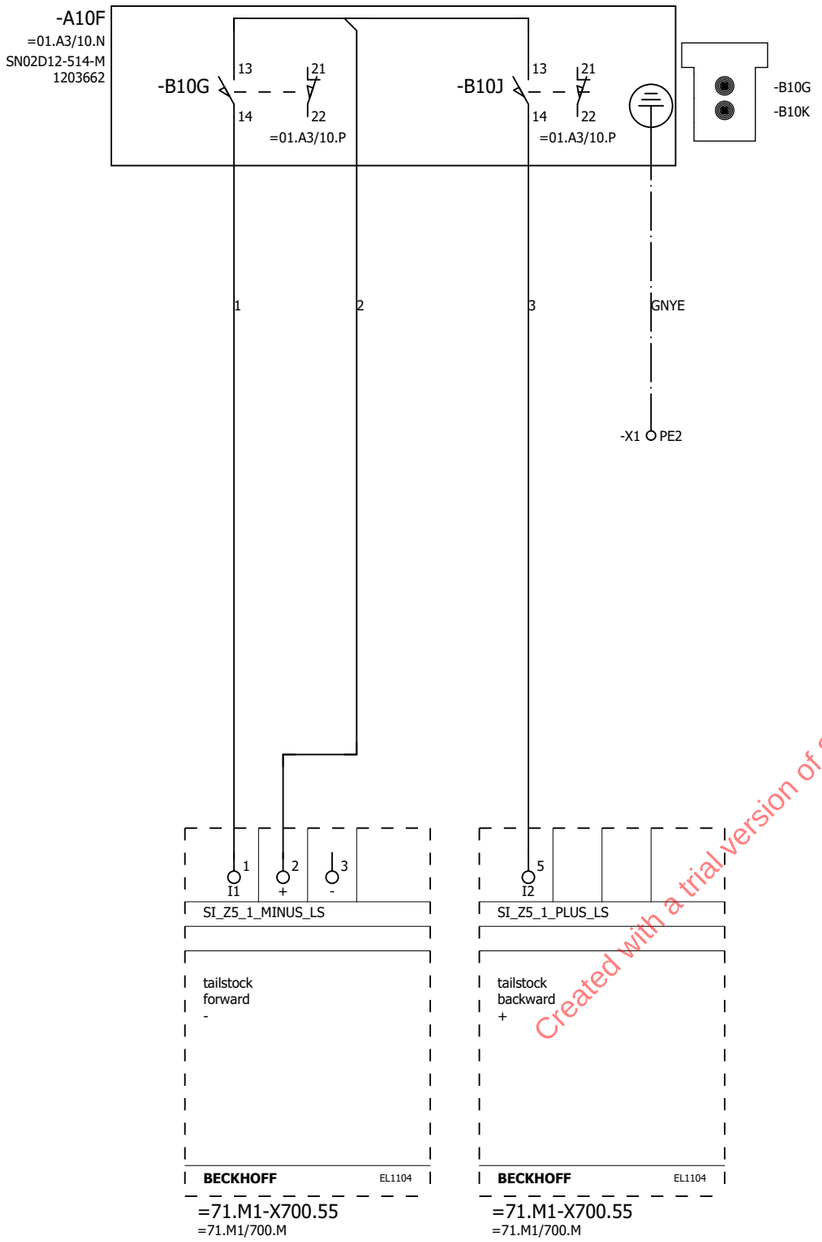
Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	tailstock Z-adjustment		= 25.Z5.1	function page
			design.	PED						+ E11	3/21
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				106



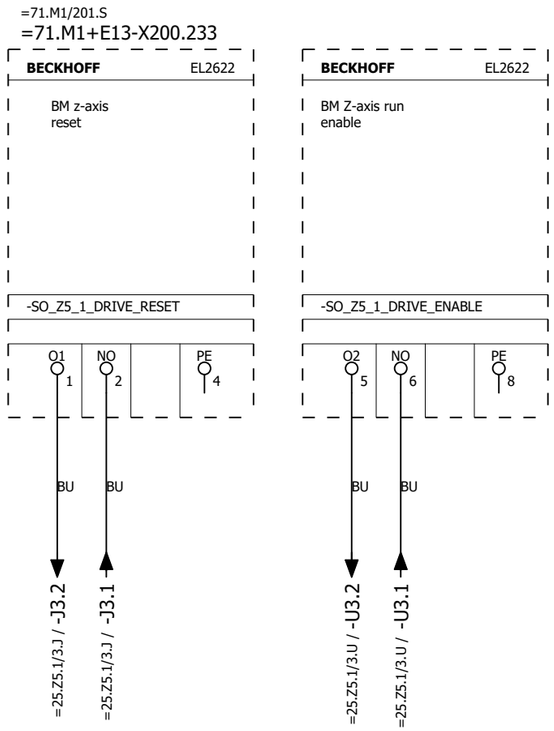
Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	tailstock Z-adjustment lubrication		= 25.Z5.1	function page 4/21
			design.	PED						+ E11	
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 107
change	date	name	norm		originally.	created for.	created by.				



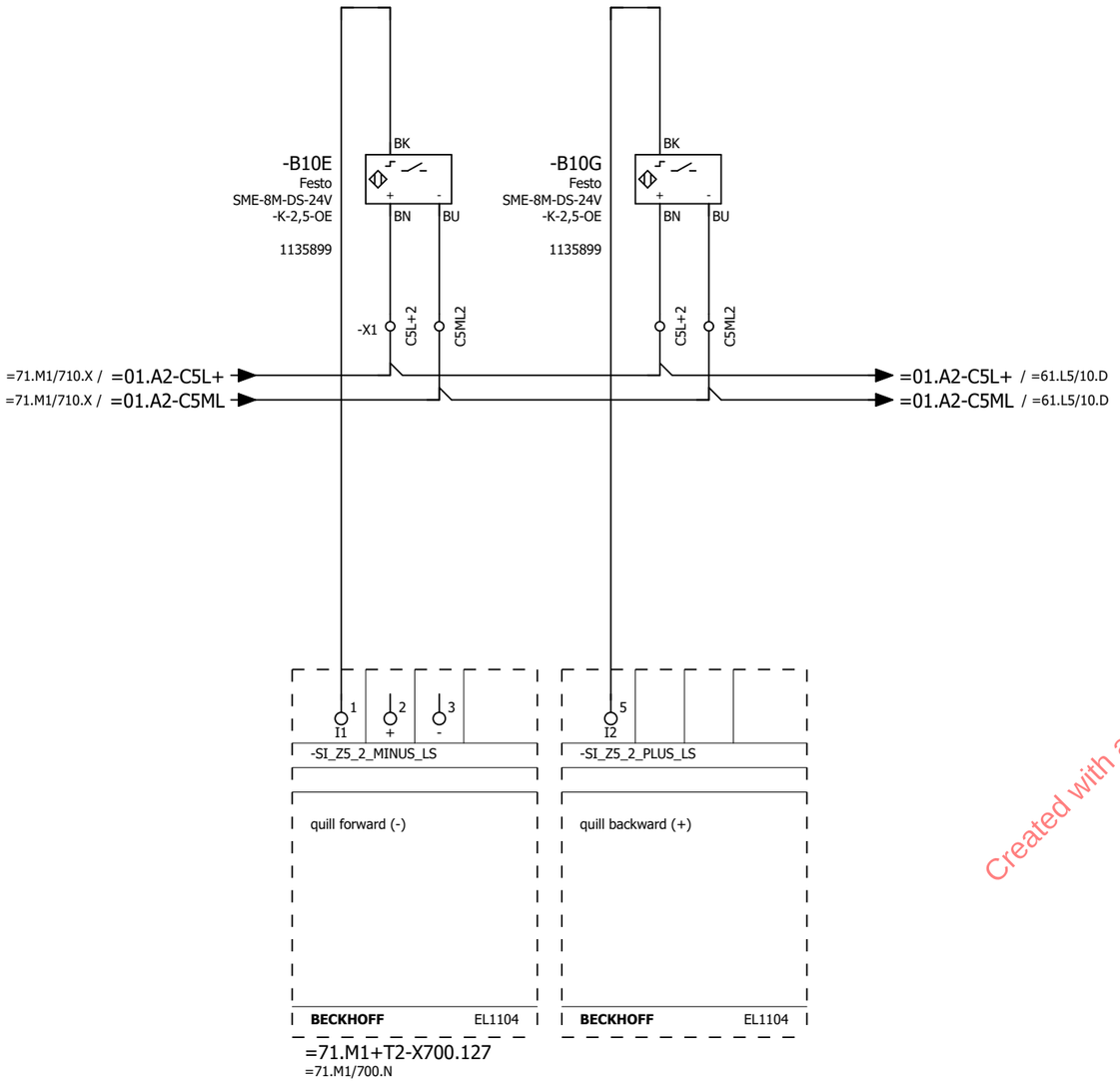
Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	tailstock Z-adjustment I/O		= 25.Z5.1 + T2	function page 10/21
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 108
change	date	name	norm		originally.	created for.	created by.				



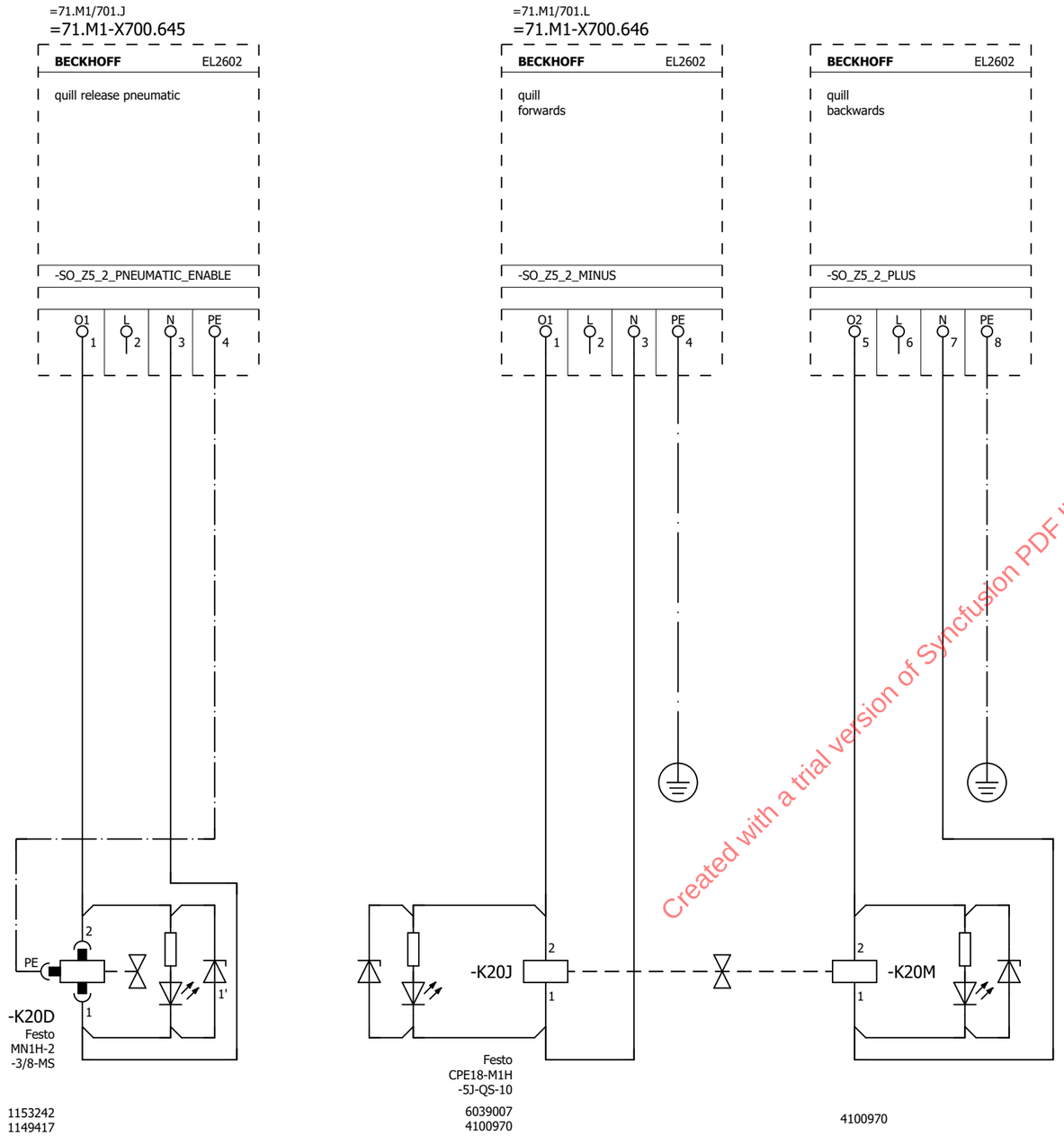
Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	tailstock Z-adjustment I/O		= 25.Z5.1	function page
			design.	PED						+ T2	21/21
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				109



Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	quill z-adjustment I/O		= 25.Z5.2 + T2	function page 10/21
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 110
change	date	name	norm		originally.	created for.	created by.				



Created with a trial version of Syncfusion PDF library.

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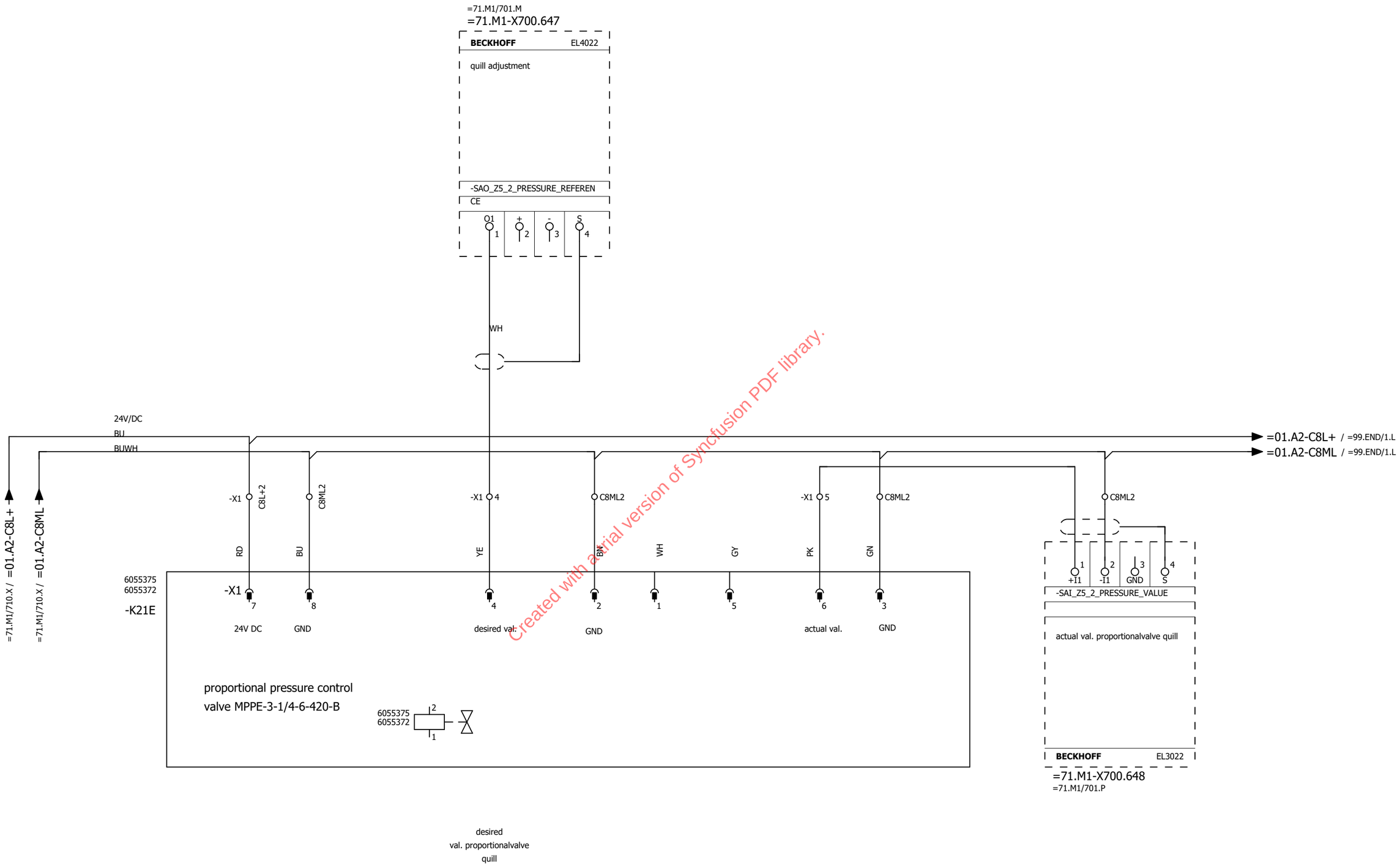
change	date	name	norm		originally.	created for.	created by.			

function page 20/21

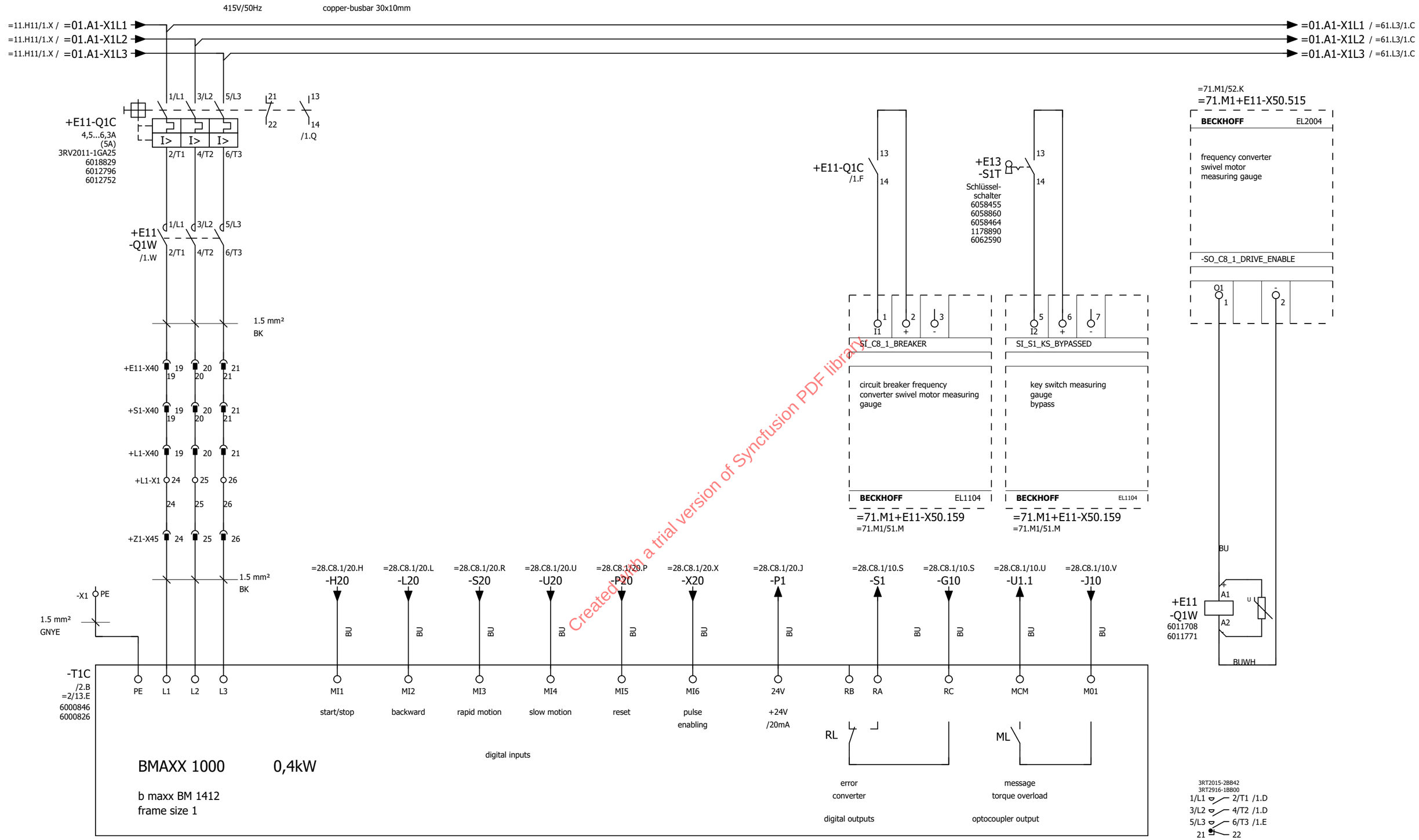
page 111



Created with a trial version of Syncfusion PDF library.

=28.C8.1/1

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	quill z-adjustment I/O		= 25.Z5.2	function page
			design.	PED						+ T2	21/21
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				112



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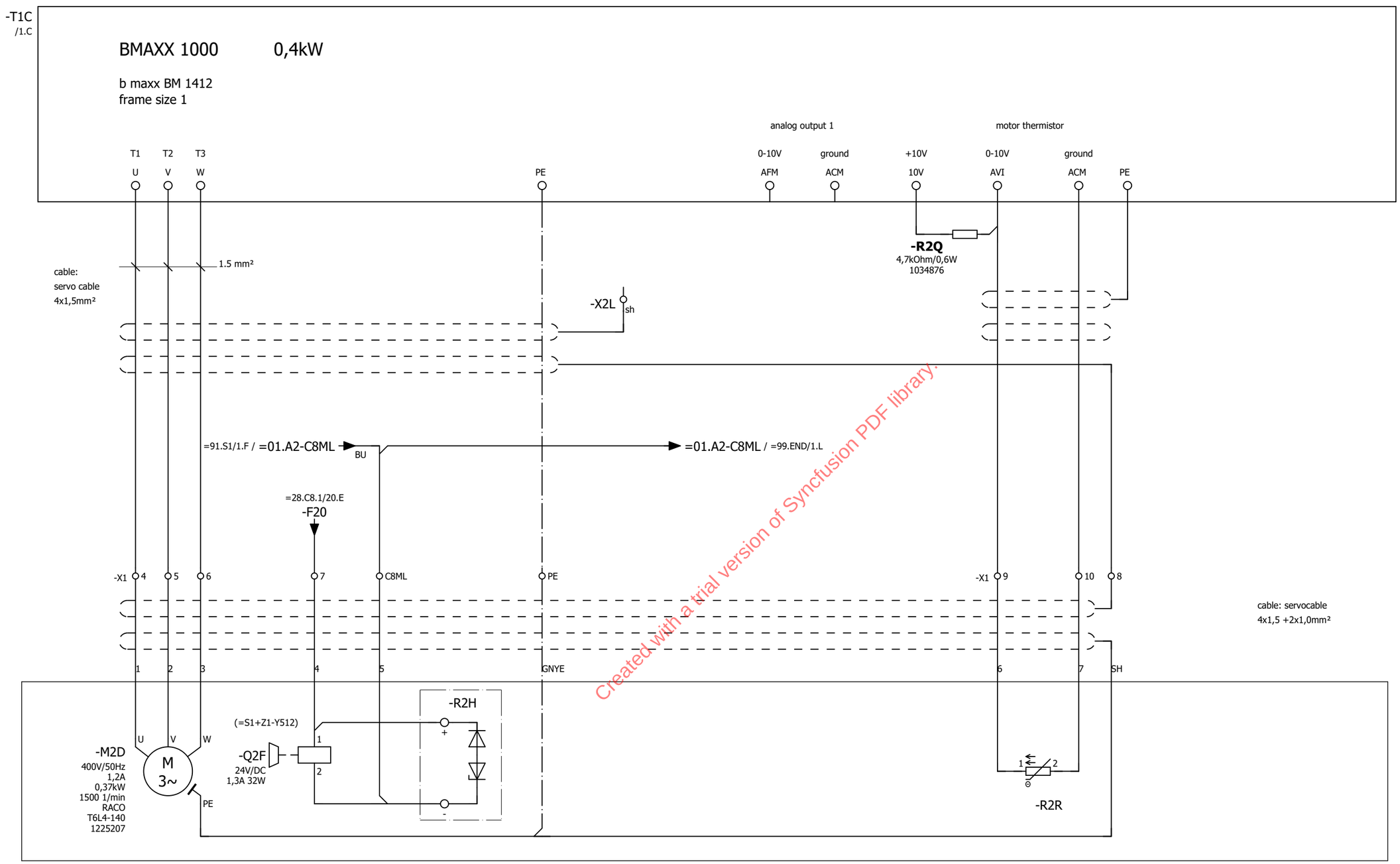
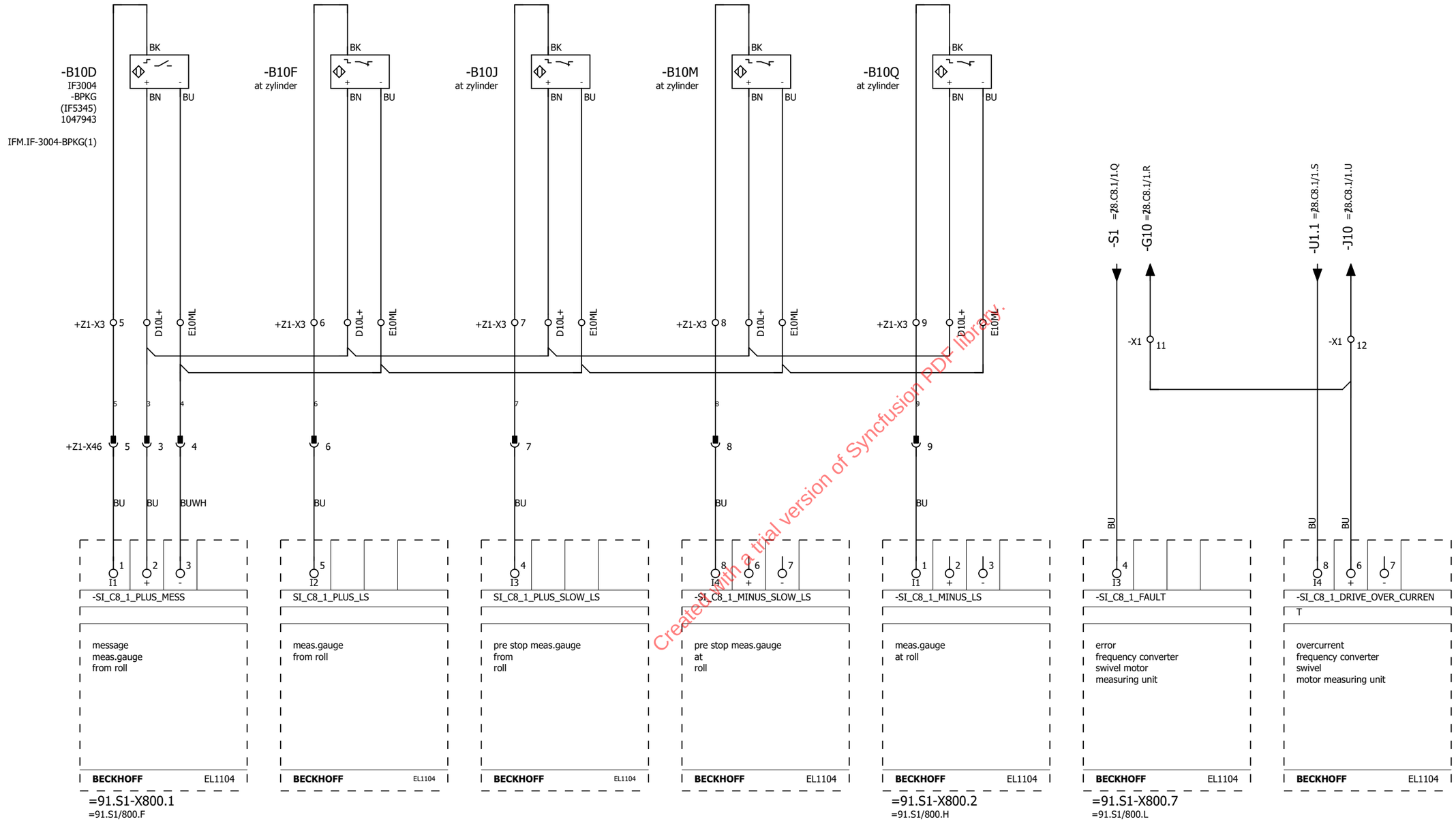


Created with a trial version of Syncfusion PDF library.

1 10

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	C-Frame swivelling in/out		= 28.C8.1 + Z1	function page 2/20
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 114
change	date	name	norm		originally.	created for.	created by.				



Created with a trial version of Syncfusion PDF library.

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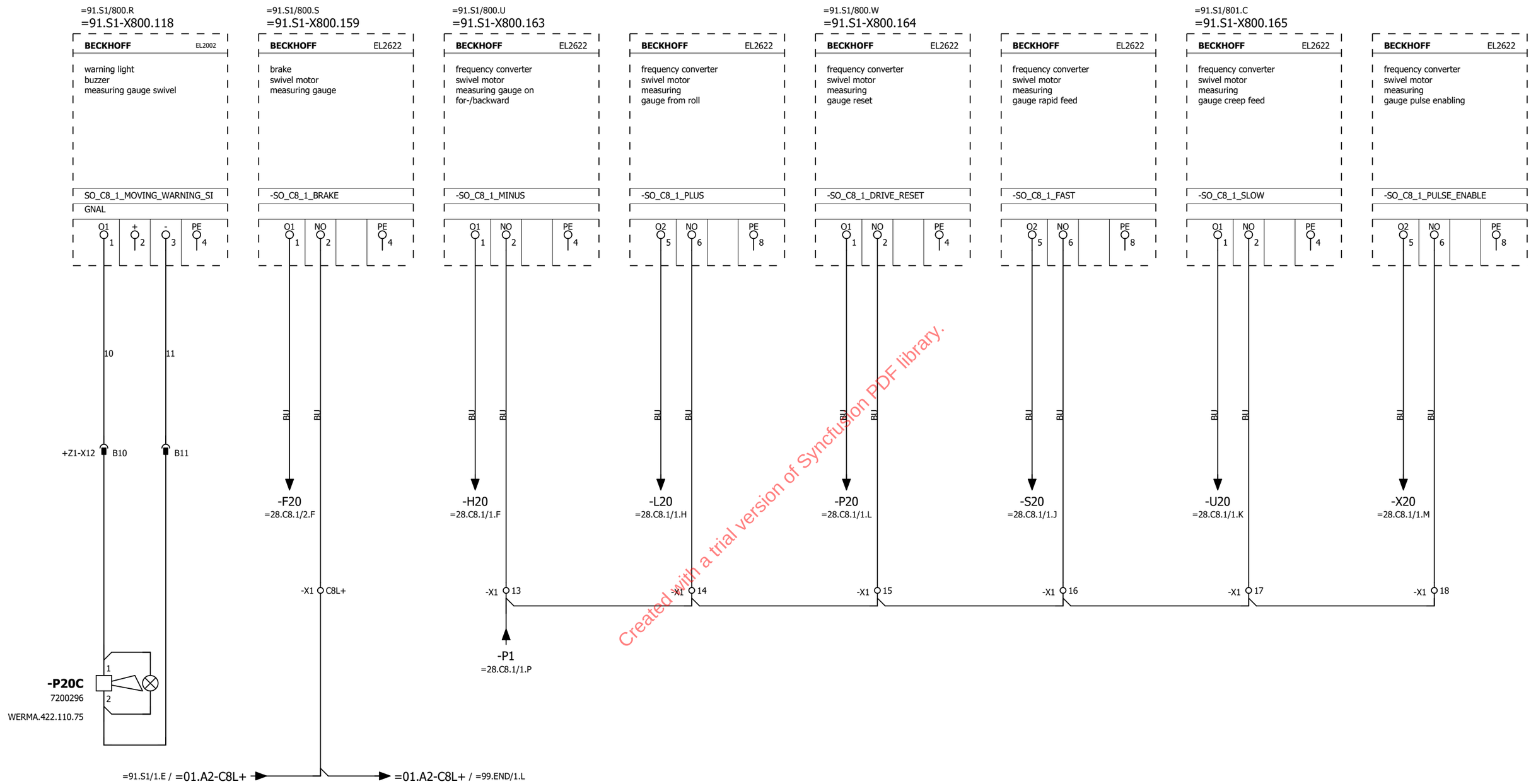
			design.	PED						+ Z1	10/20
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				115



Created with a trial version of Syncfusion PDF library.

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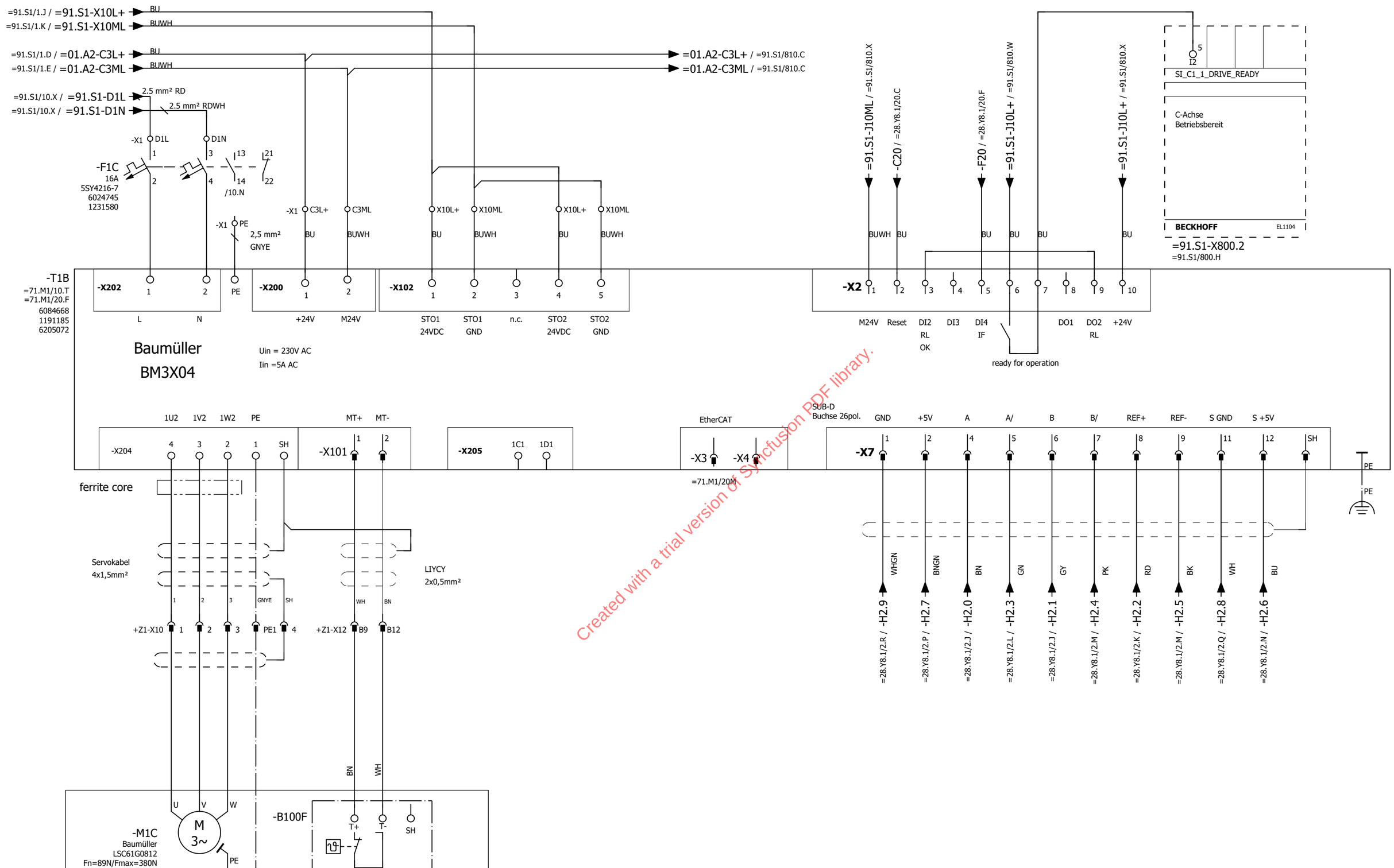
			design.	PED						+ Z1	20/20
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				116



Created with a trial version of Syncfusion PDF library.

=.C8.1/20

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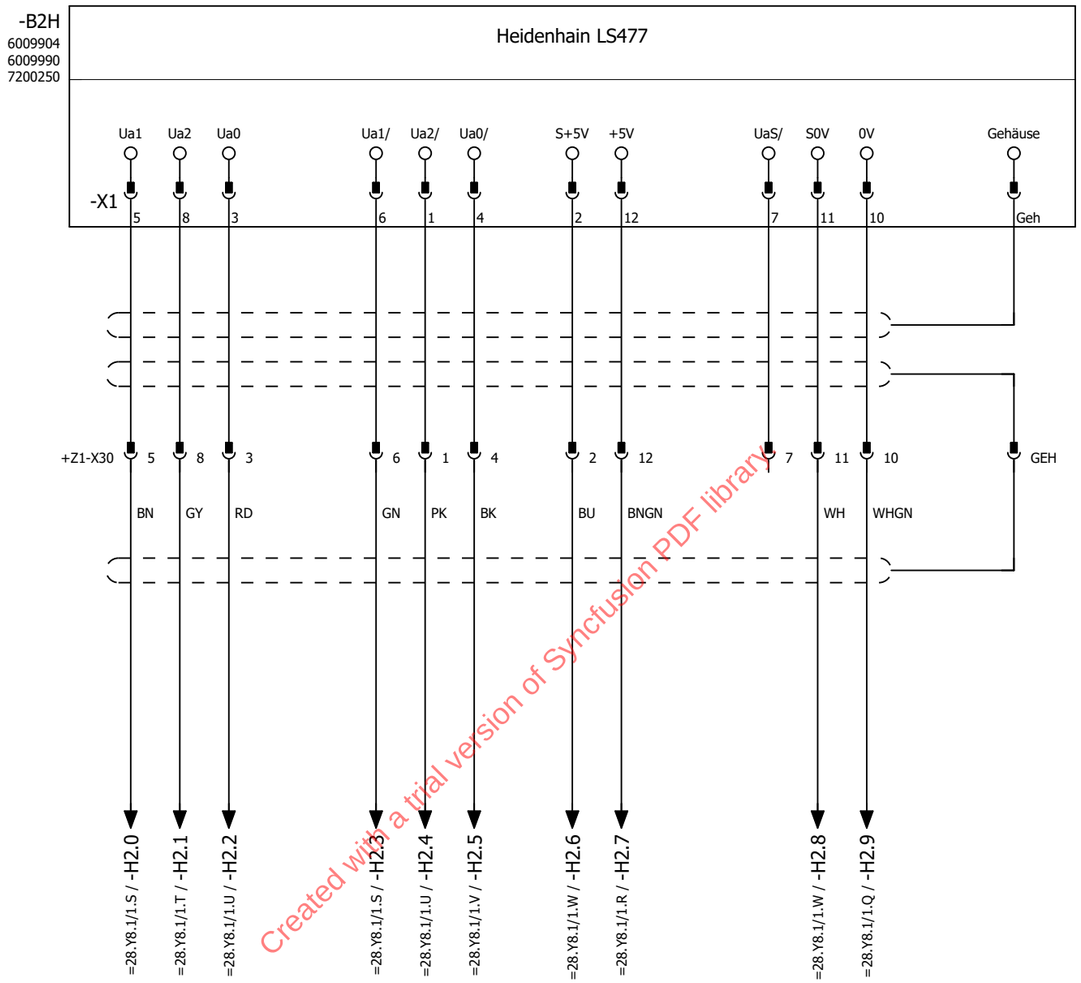
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	C-Frame arm A+B		= 28.Y8.1	function page
			design.	PED						+ Z1	1/20
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				117



Created with a trial version of Syncfusion PDF library

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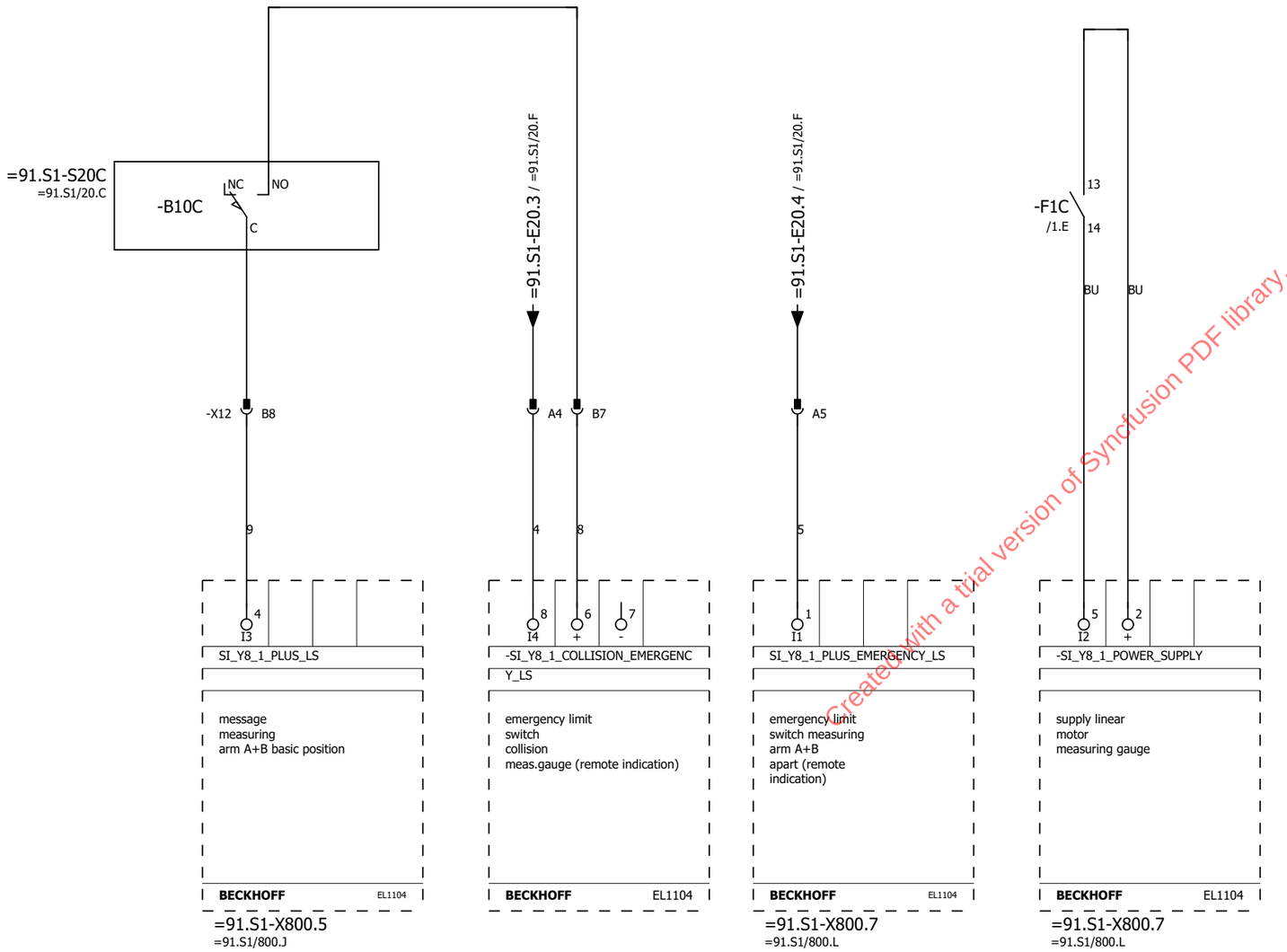
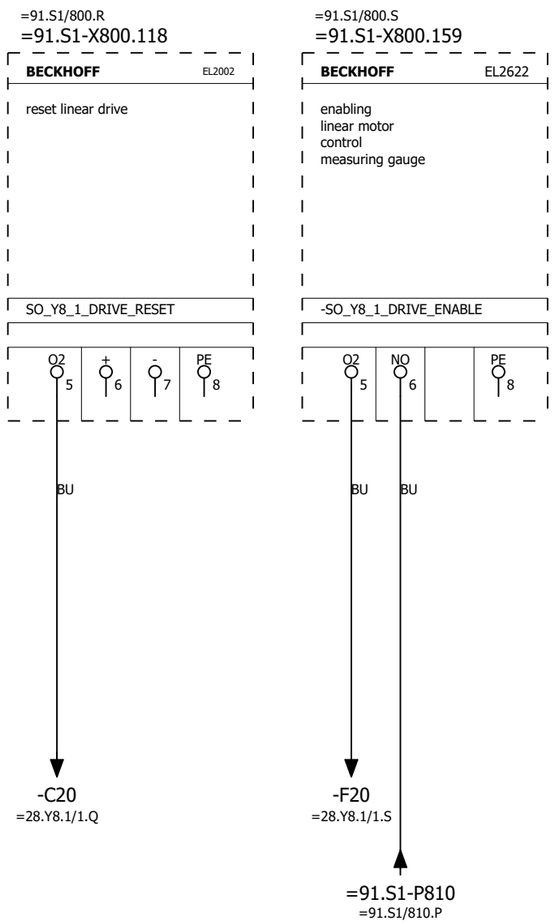
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	C-Frame arm A+B scale A		= 28.Y8.1	function page
			design.	PED						+ Z1	2/20
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				118



Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	C-Frame arm A+B I/O		= 28.Y8.1 + Z1	function page 10/20
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 119
change	date	name	norm		originally.	created for.	created by.				



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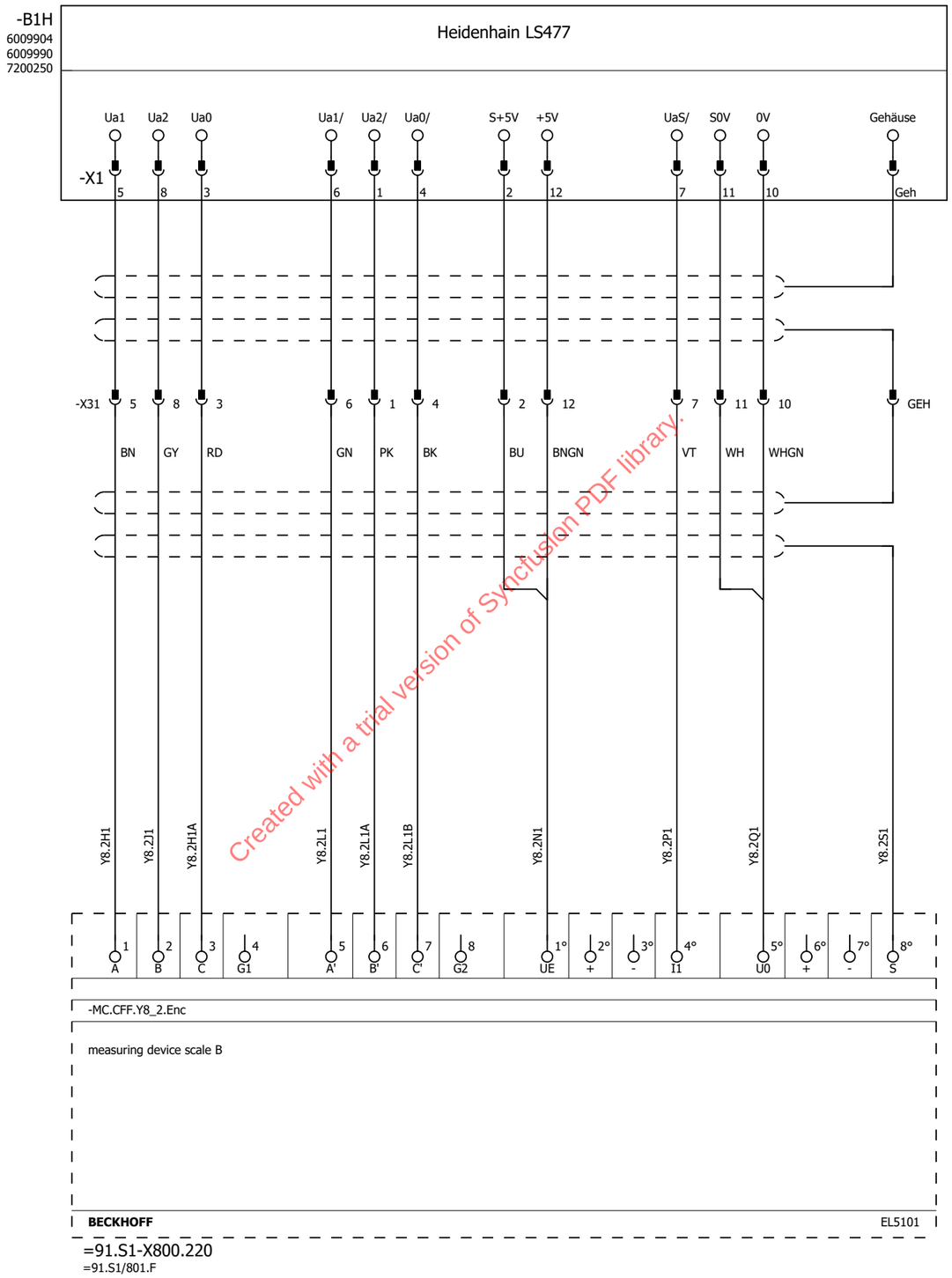

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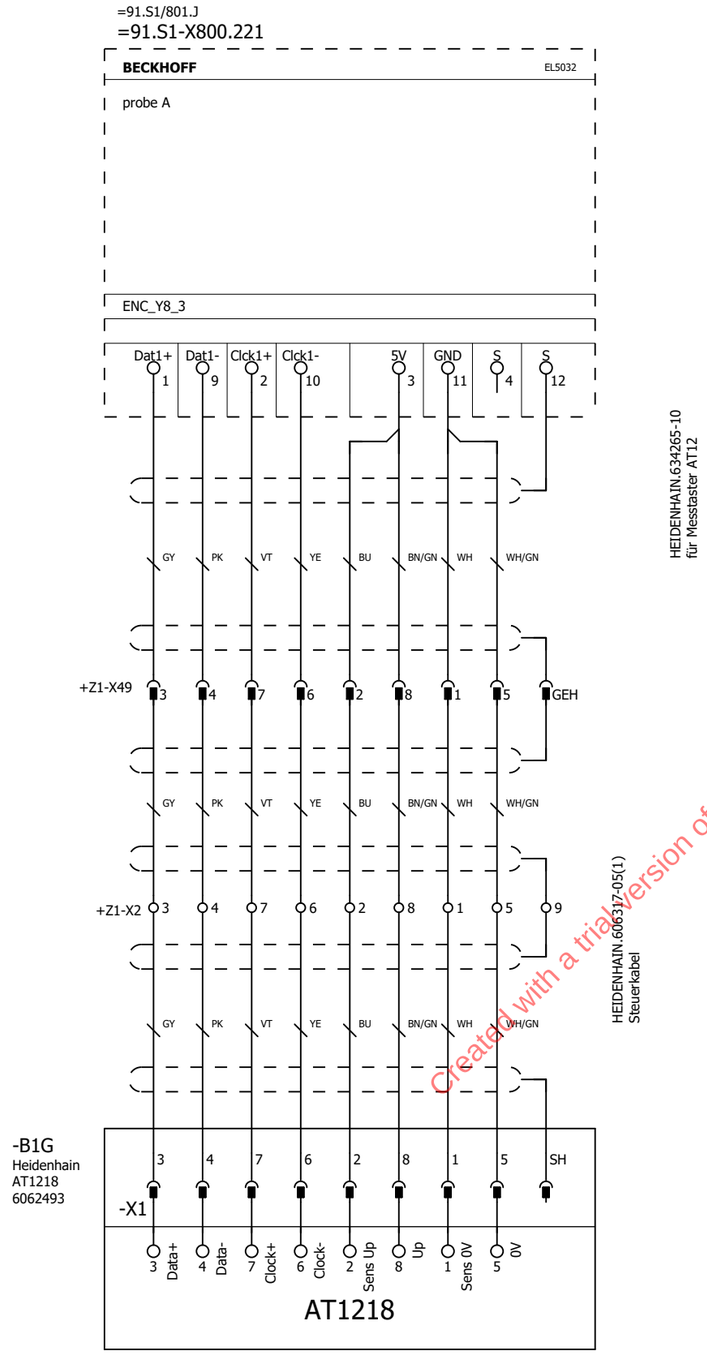
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 121
change	date	name	norm		originally.	created for.	created by.				



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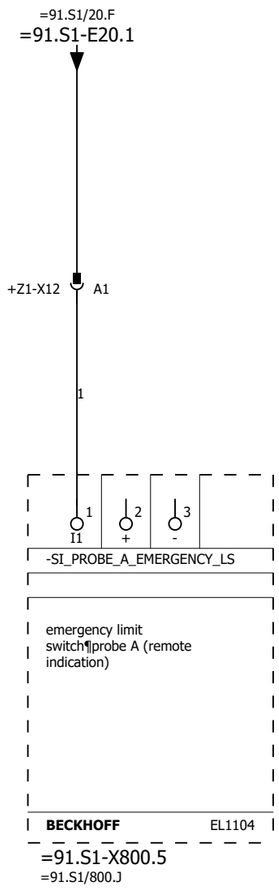
			design.	PED						
			check.					98290 WS450 KL x 5500 CNC Monolith	2953	page 122
change	date	name	norm		originally.	created for.	created by.			



Created with a trial version of Syncfusion PDF library.

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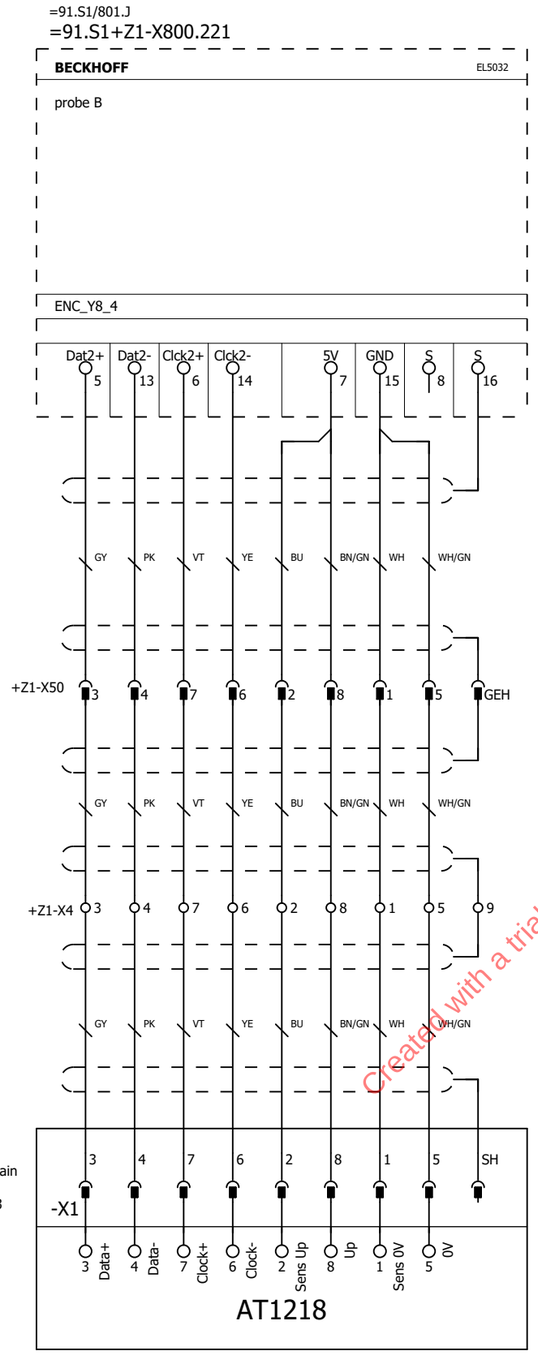
			design.	PED						+ Z1	10/10
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				123



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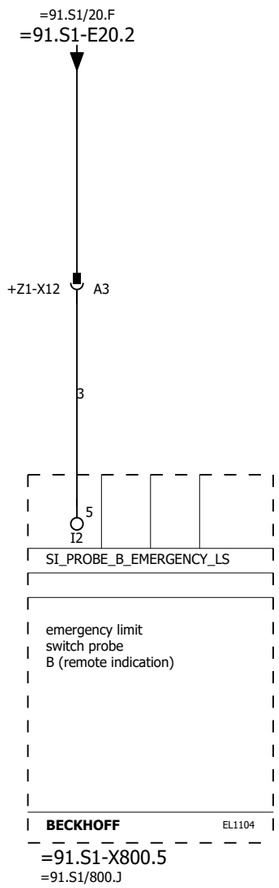
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	C-Frame probe B		= 28.Y8.4 + Z1	function page 1/10
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 124
change	date	name	norm		originally.	created for.	created by.				



Created with a trial version of Syncfusion PDF library.

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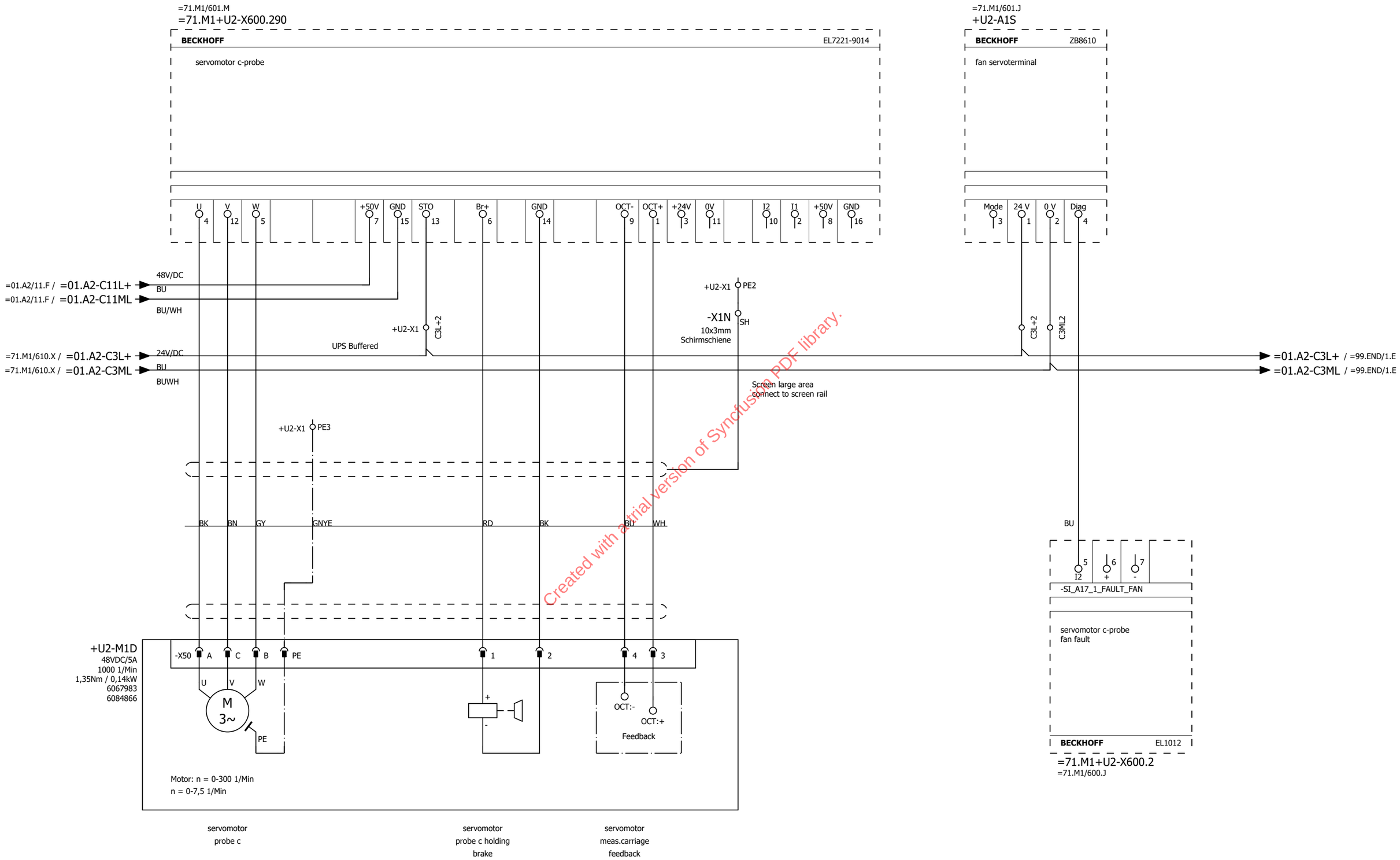
			design.	PED						+ Z1	10/10
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				125

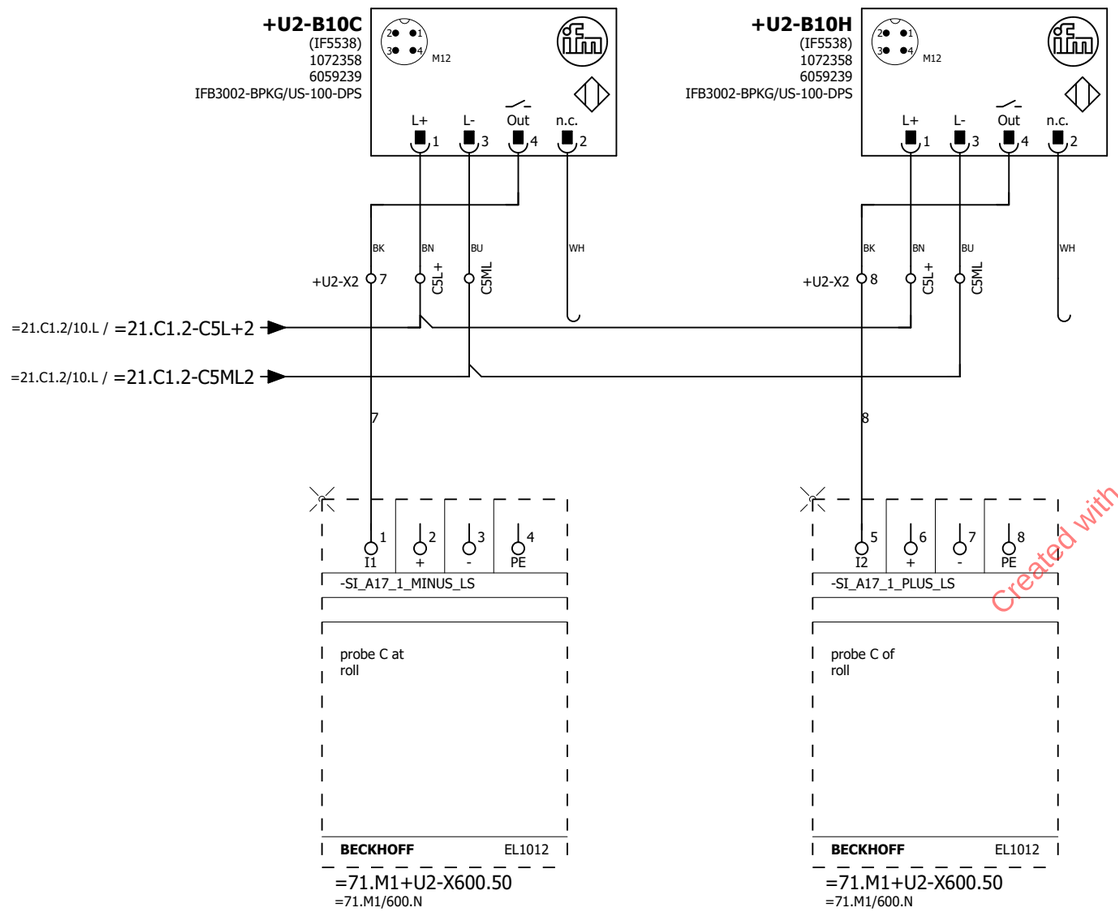


Created with a trial version of Syncfusion PDF library.

=28.Y8.4/10

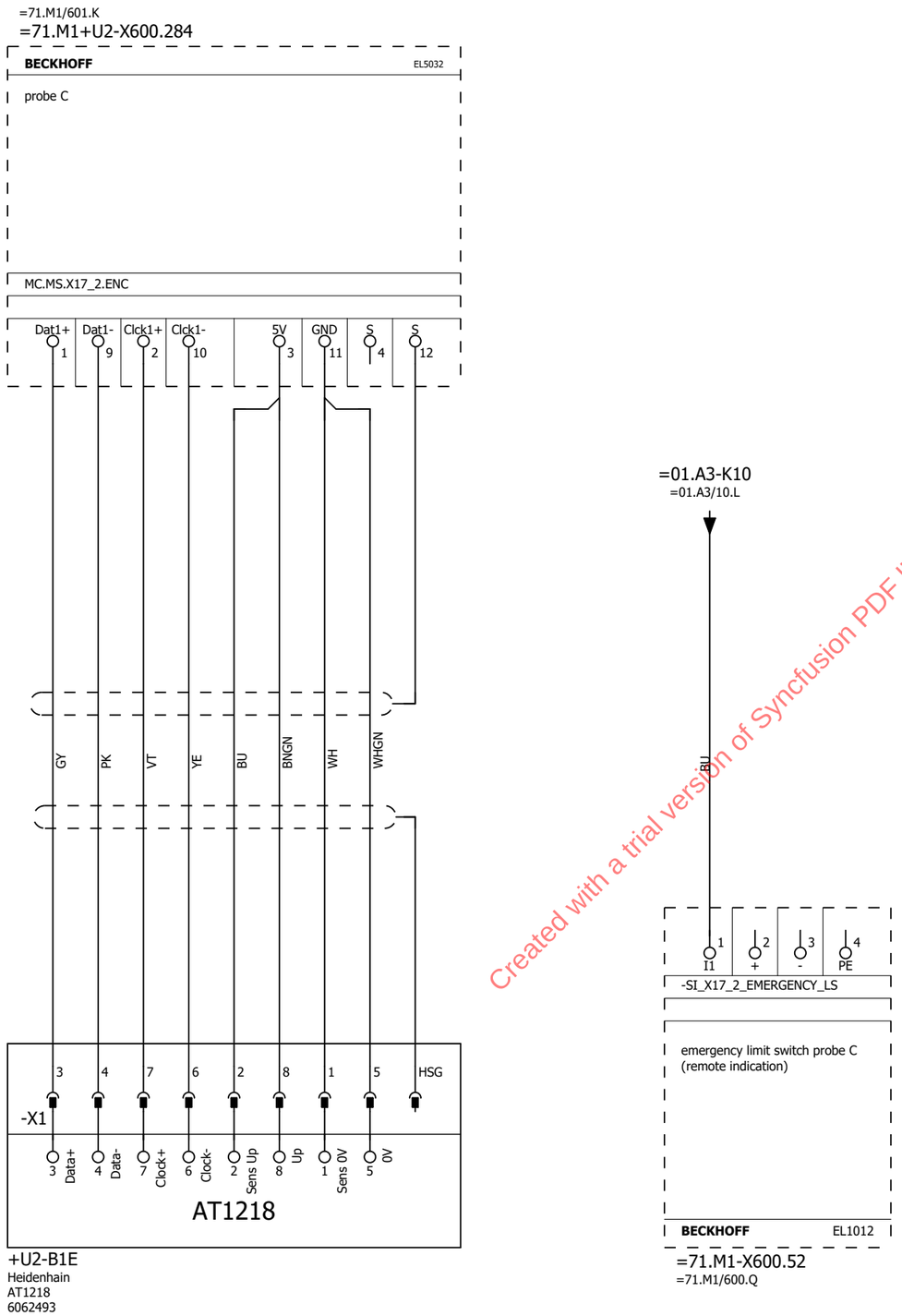
10

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	C-Probe swiveling		= 37.A17.1 + E11	function page 1/10
			design.	PED						
			check.					98290 WS450 KL x 5500 CNC Monolith	2953	page 126
change	date	name	norm		originally.	created for.	created by.			



Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	probe C I/O		= 37.A17.1 + E11	function page 10/10
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 127
change	date	name	norm		originally.	created for.	created by.				



Created with a trial version of Syncfusion PDF library.

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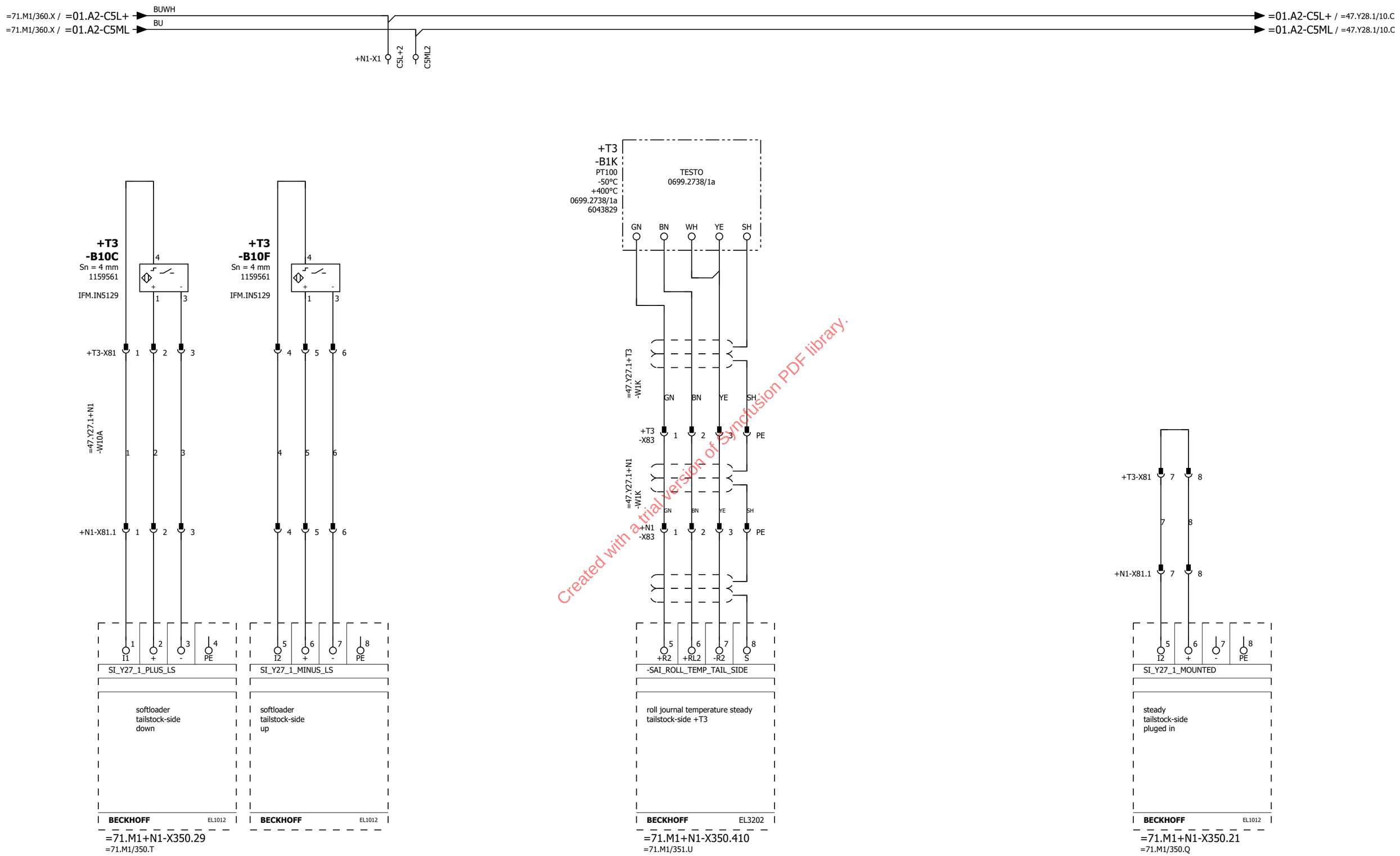
=47.Y27.1/10

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	C-probe		= 37.X17.2	function page
			design.	PED						+ U2	1/1
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				128



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=37.X17.2/1

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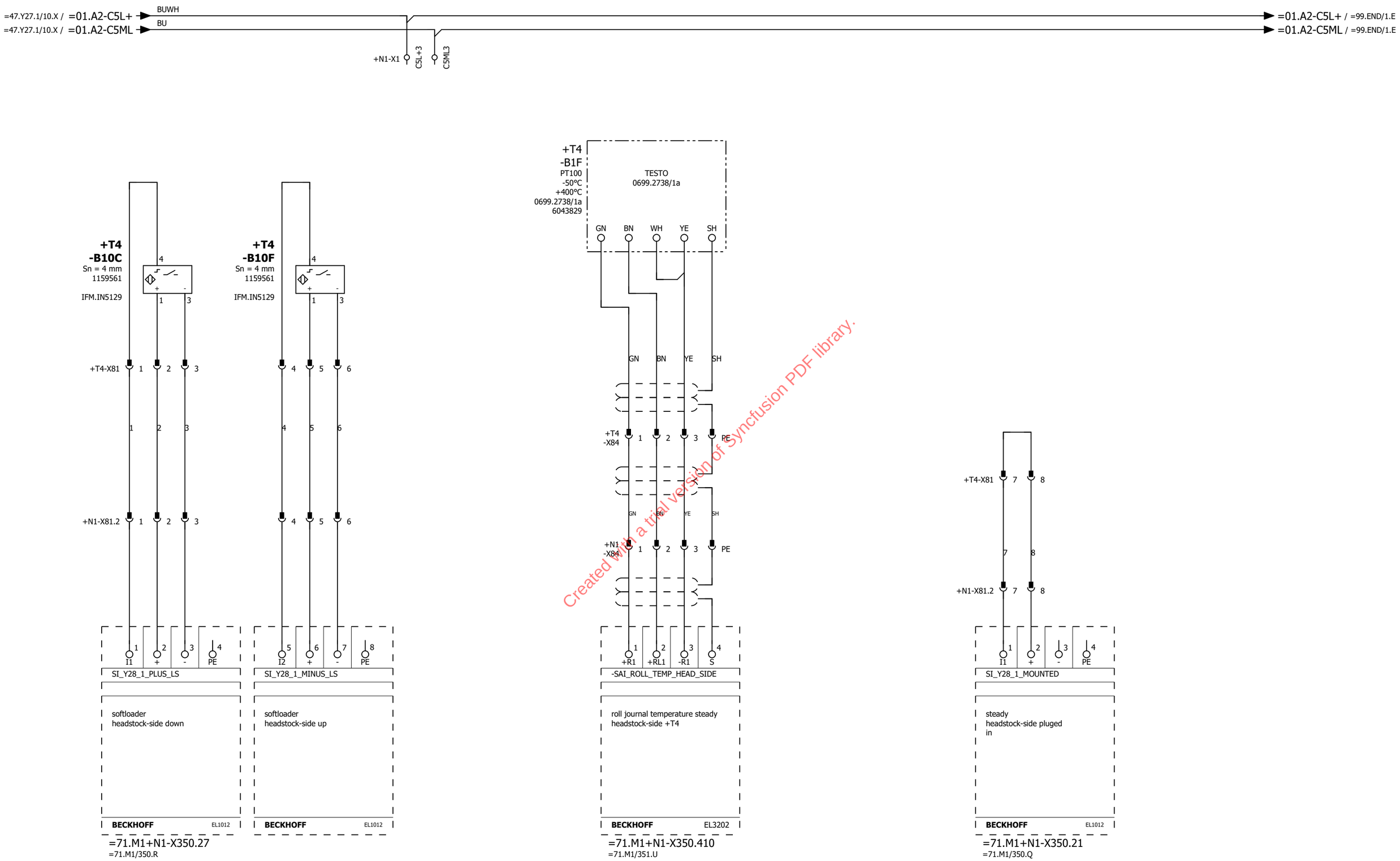
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	RSS softloader I/O	1	= 47.Y27.1 + T3	function page 10/10
			design.	PED				98290 WS450 KL x 5500 CNC Monolith	2953	page 129
			check.							
change	date	name	norm		originally.	created for.	created by.			

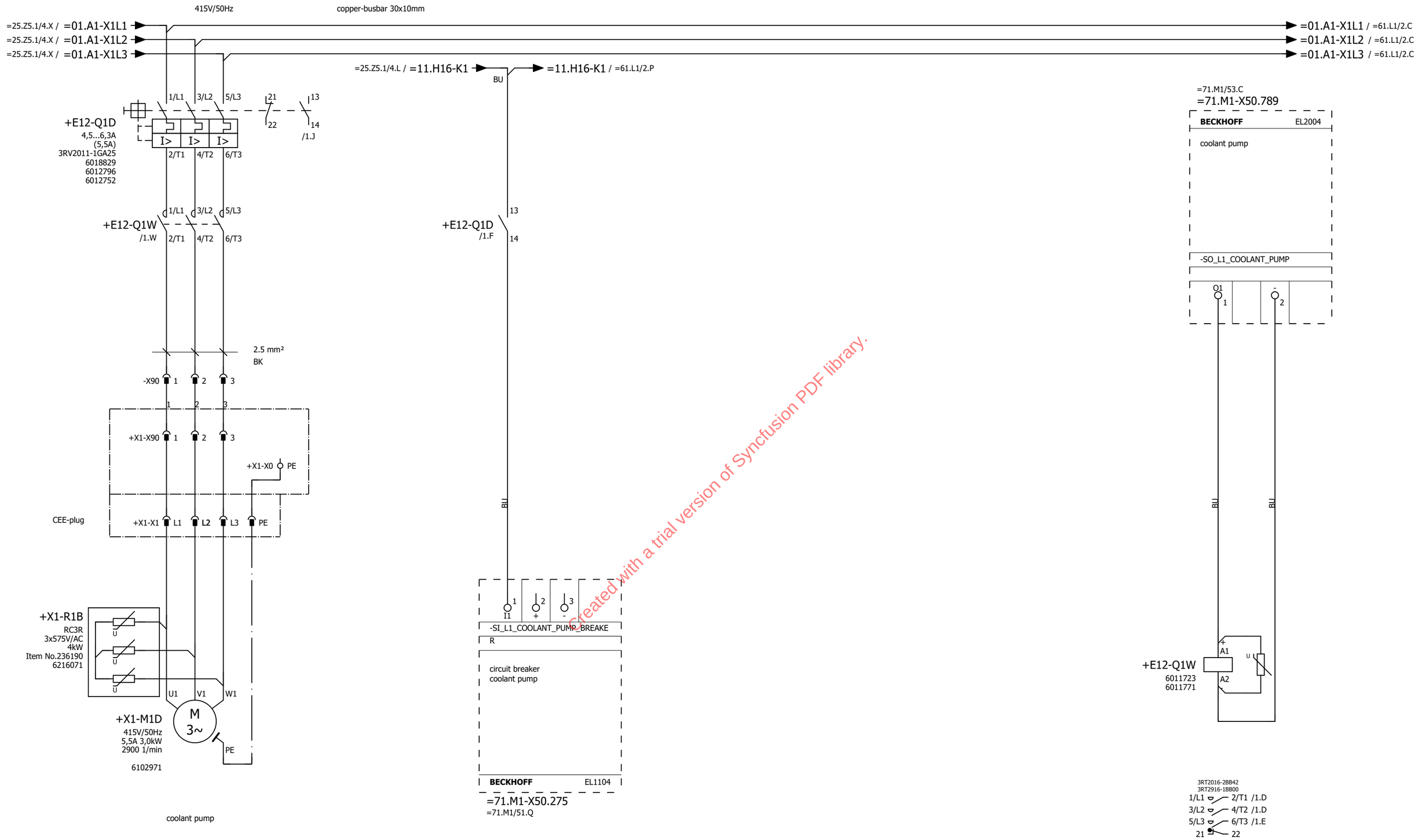


Created with a trial version of Syncfusion PDF library.

=.Y27.1/10

=61.L1/1

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	HS Softloader I/O	1	= 47.Y28.1 + T4	function page 10/10
			design.	PED				98290 WS450 KL x 5500 CNC Monolith	2953	page 130
			check.							
change	date	name	norm		originally.	created for.	created by.			



Created with a trial version of Syncfusion PDF library.

=47.Y28.1/10

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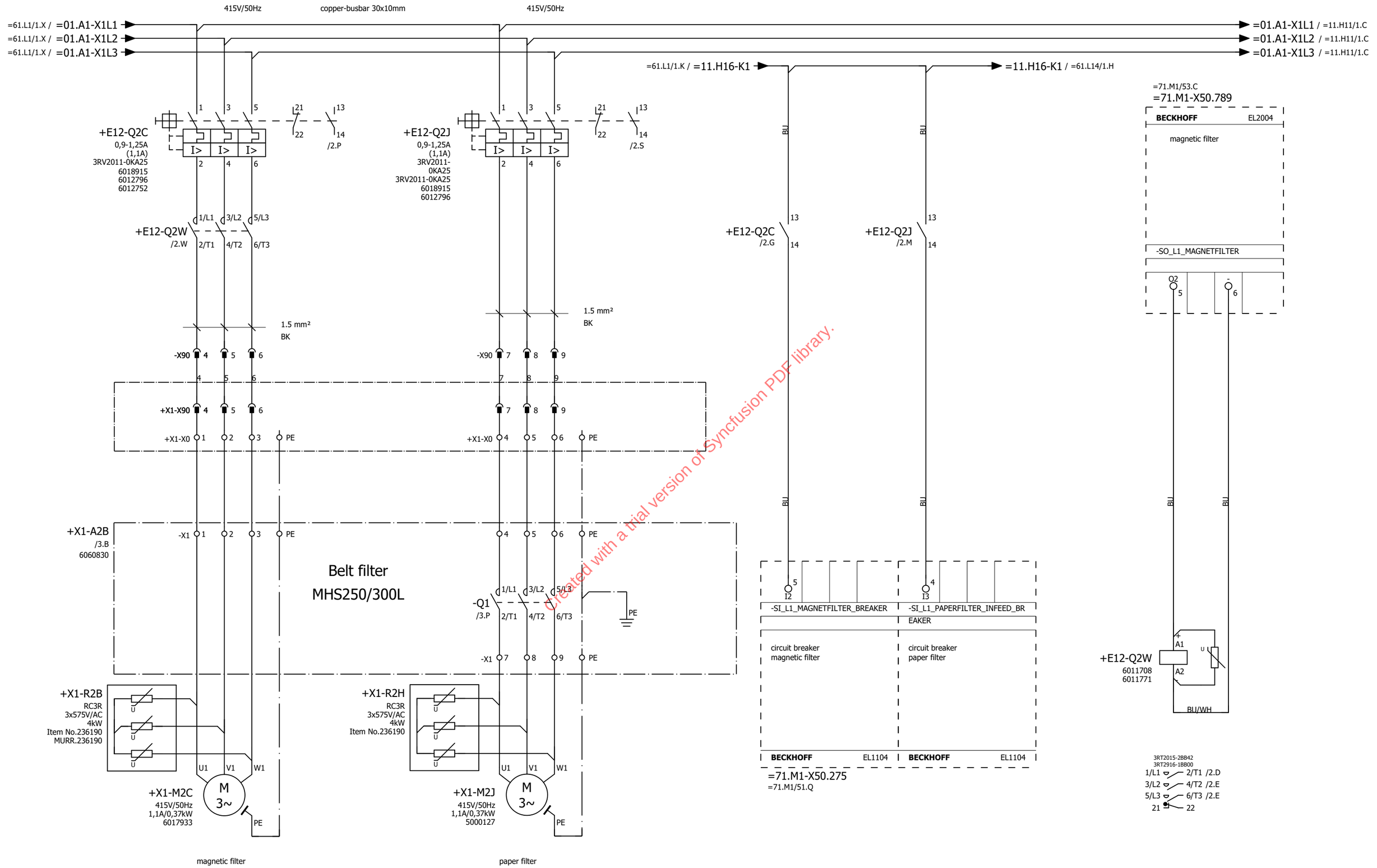
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	water supply		= 61.L1
			design.	PED						+ E11
			check.						98290 WS450 KL x 5500 CNC Monolith	2953
change	date	name	norm		originally.	created for.	created by.			

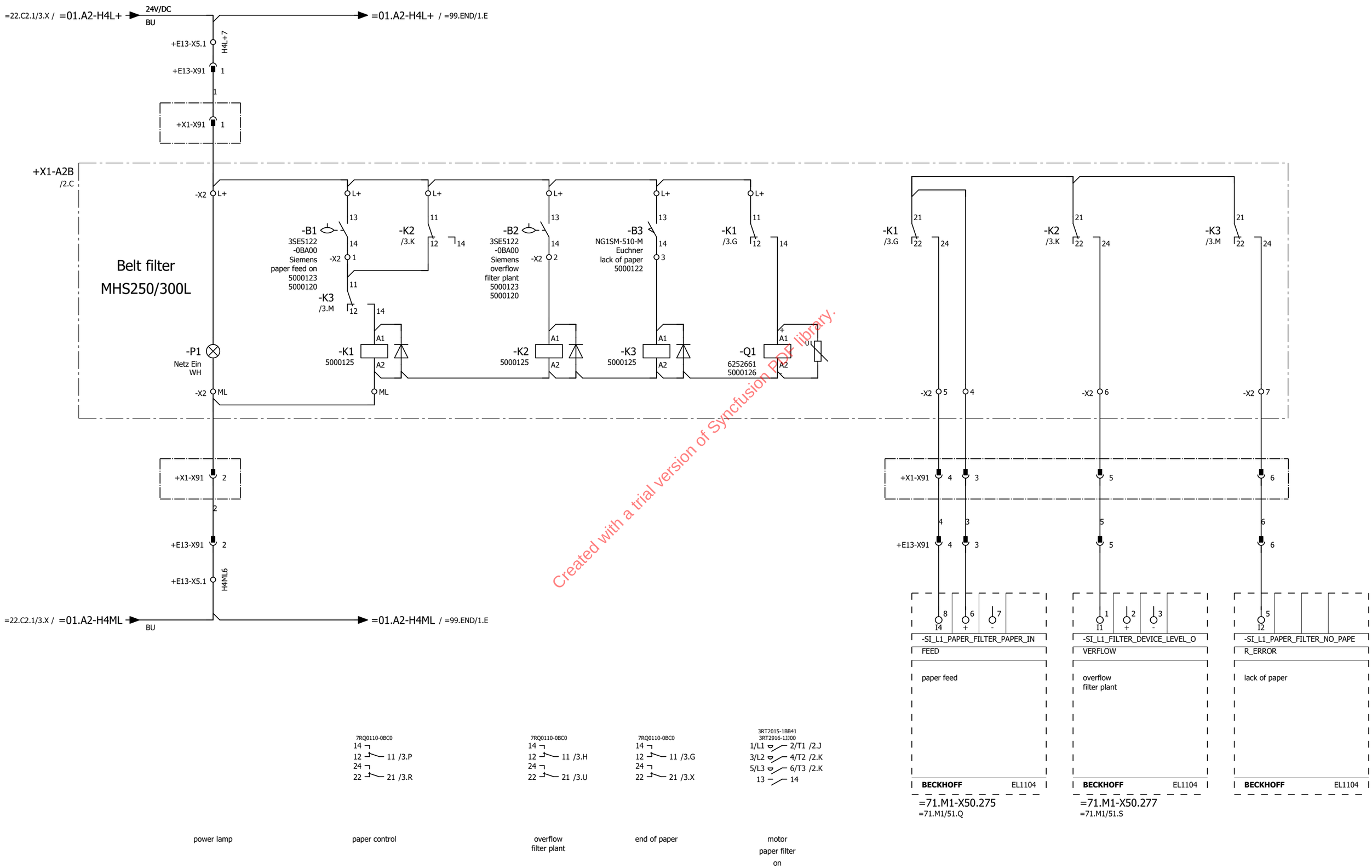
function page 1/20

page 131



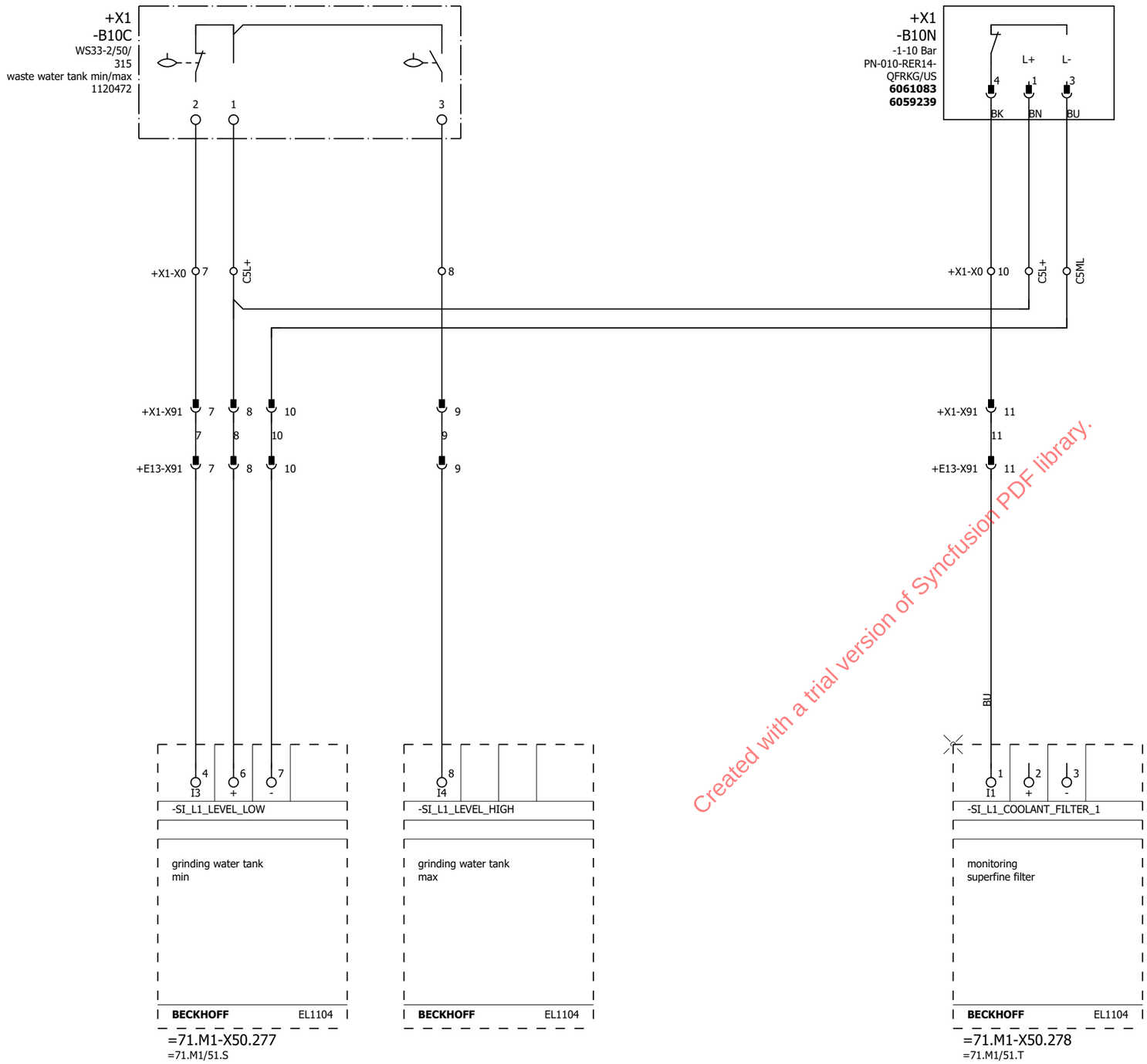
Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	water supply		= 61.L1	function page
			design.	PED						+ E11	2/20
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				132



Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	water supply		= 61.L1 / + E11	function page 3/20
			design.	PED						
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 133
change	date	name	norm		originally.	created for.	created by.			



Created with a trial version of Syncfusion PDF library.

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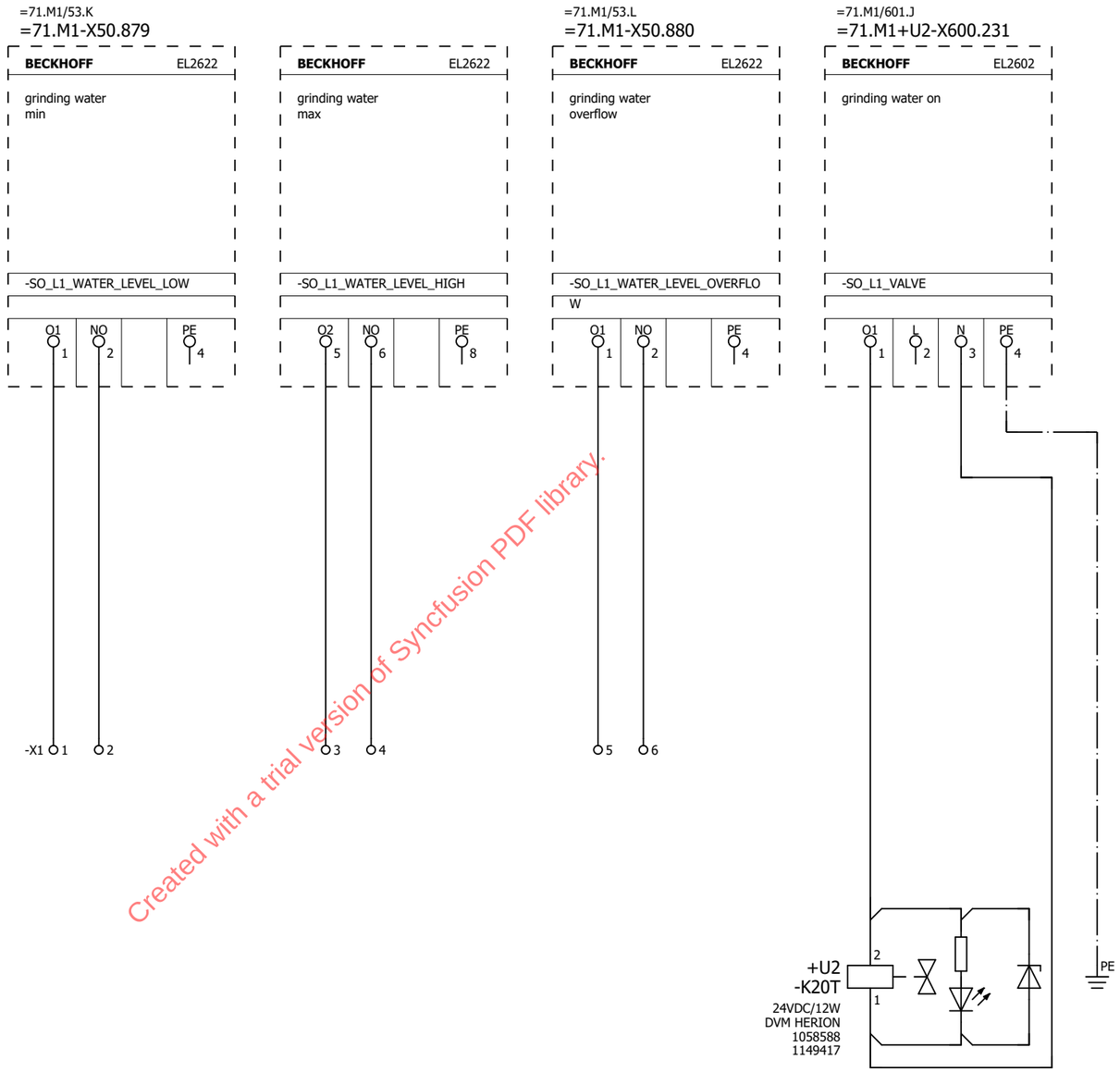
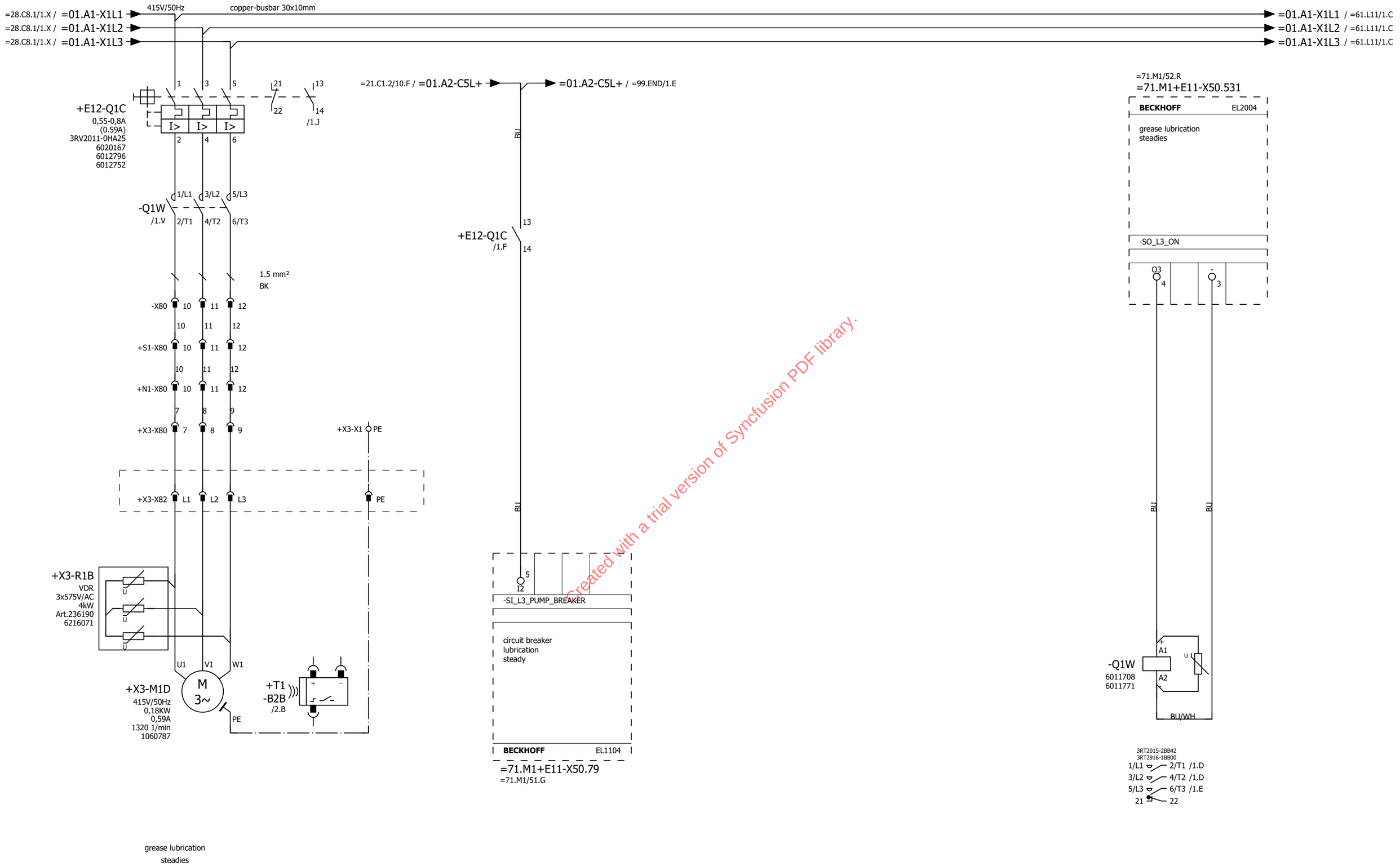
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 134
change	date	name	norm		originally.	created for.	created by.				



Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	water supply I/O		= 61.L1	function page
			design.	PED						+ E11	20/20
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				135

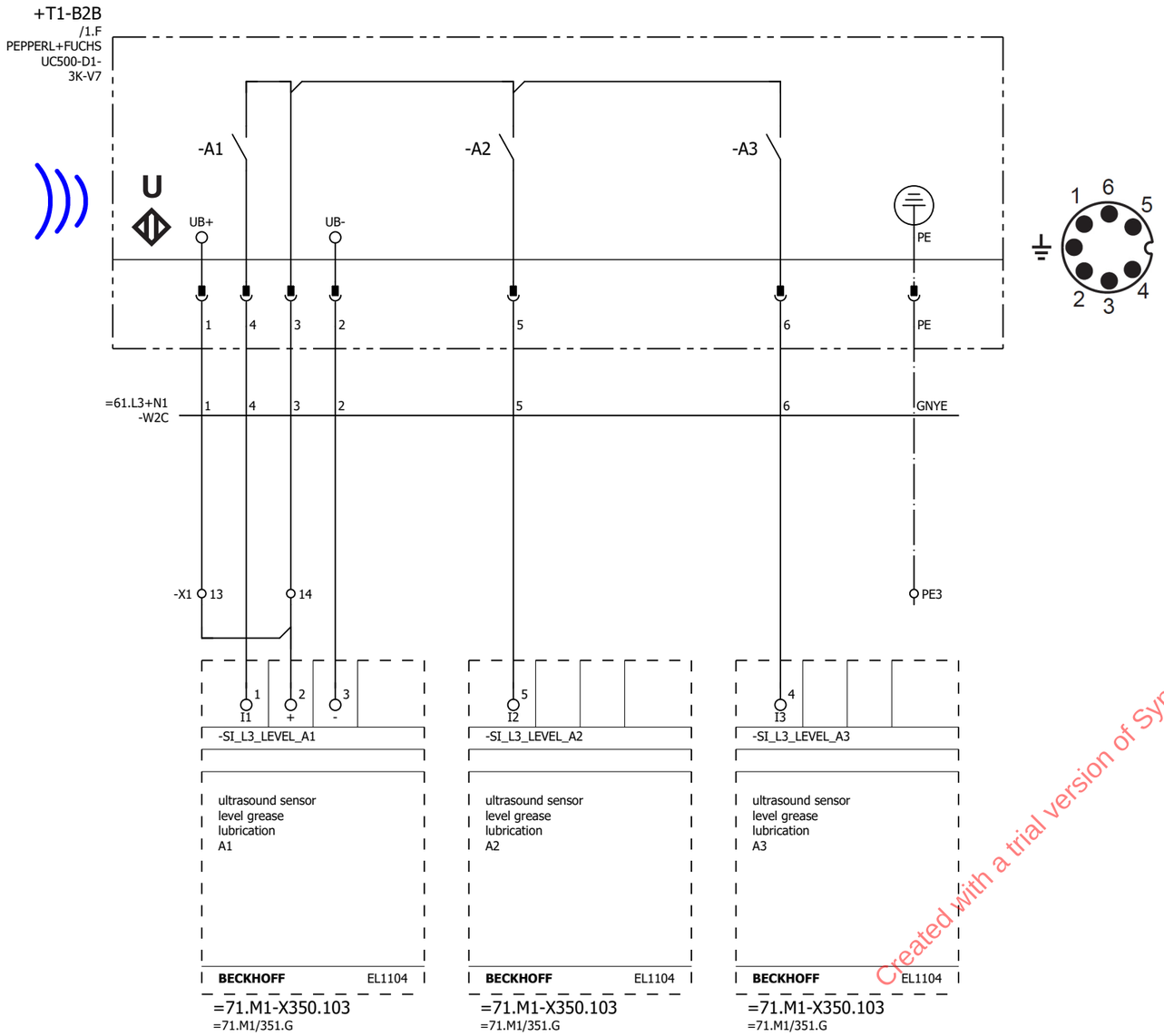


Created with a trial version of Syncfusion PDF library.

=.L1/20

2

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	steadies lubrication		= 61.L3	function page
			design.	PED						+ E11	1/2
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				136

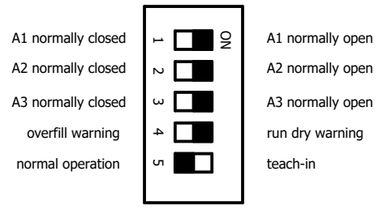


Created with a trial version of Syncfusion PDF library.

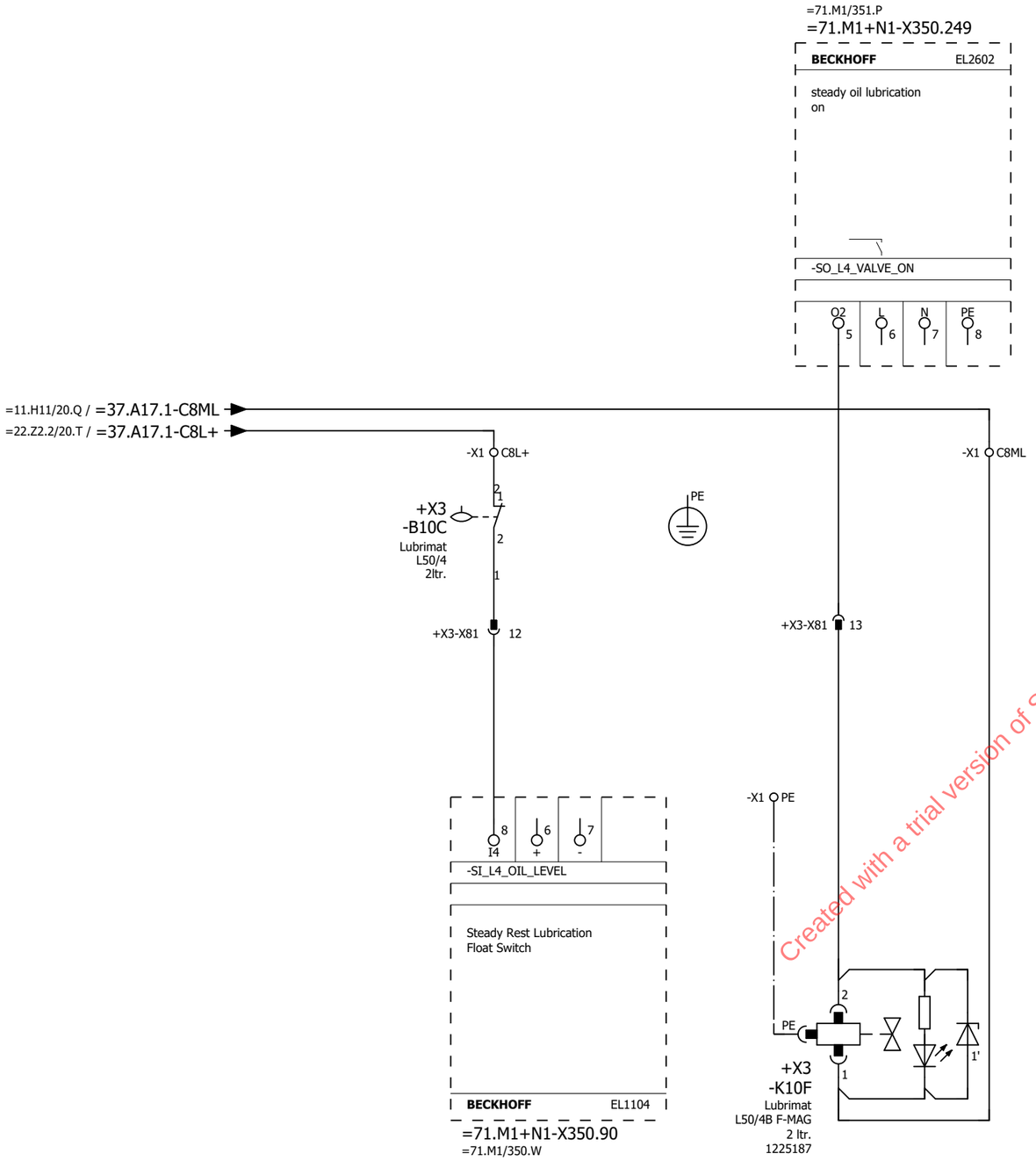
DIP-switch 4 ON, underfill warning:

object distance x	x <A1	A1< x <A2	A2< x <A3	x >A3
LED 1. red (empty)	flashes	off	off	off
LED 2. green/yellow (normal)	off	lights green	off	off
LED 3. green/yellow (low)	off	off	flashes yellow	off
LED 4. red (empty)	off	off	off	flashes

switch output
adjustment



	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	level monitoring grease lubrication steadies		= 61.L3	function page
			design.	PED						+ N1	2/2
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				137

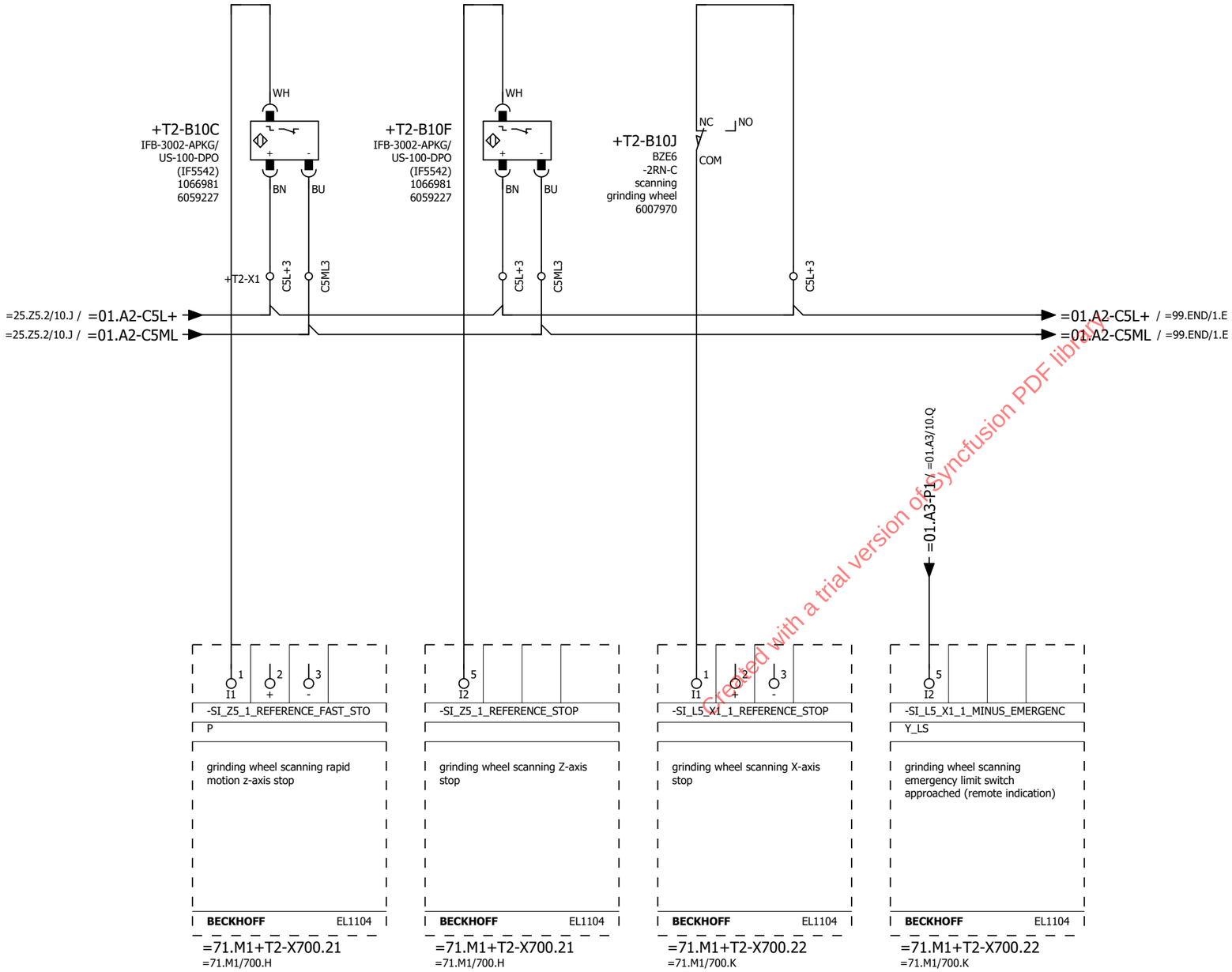


Created with a trial version of Syncfusion PDF library.

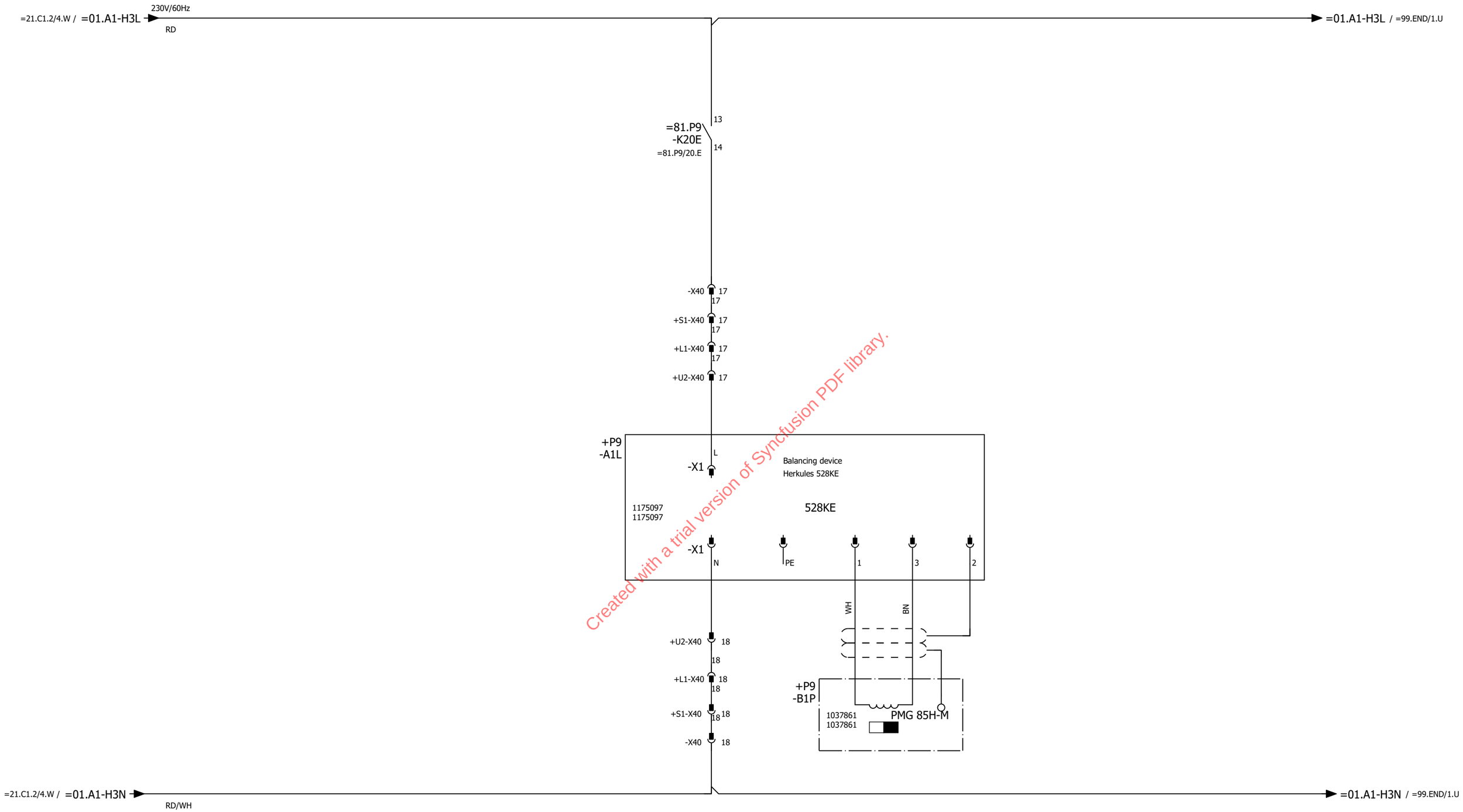
=.L3/2

=.L5/10

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	steadies lubrication I/O		= 61.L4	function page
			design.	PED						+ X3	10/10
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				138



Created with a trial version of Syncfusion PDF library

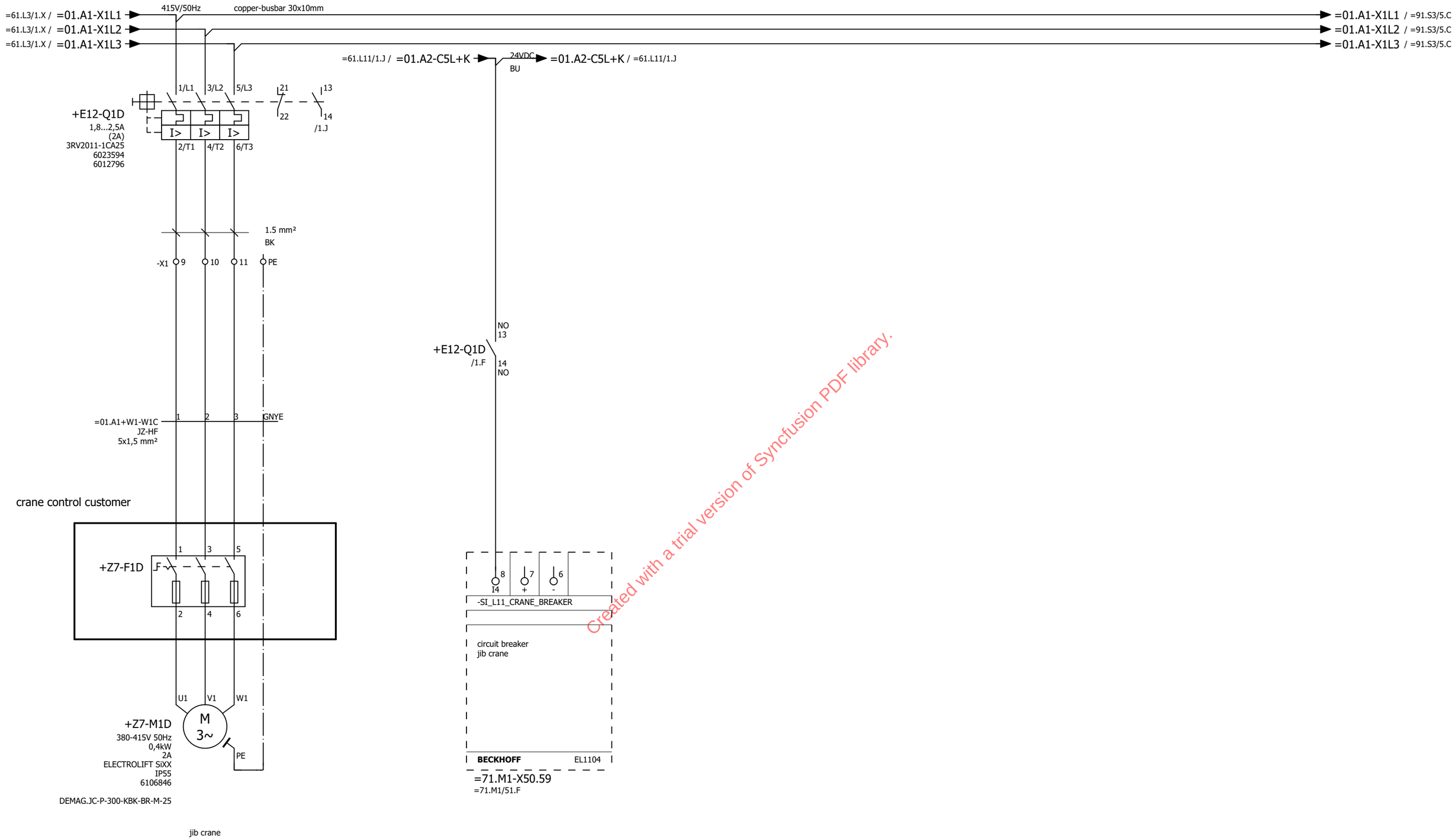


Created with a trial version of Syncfusion PDF library.

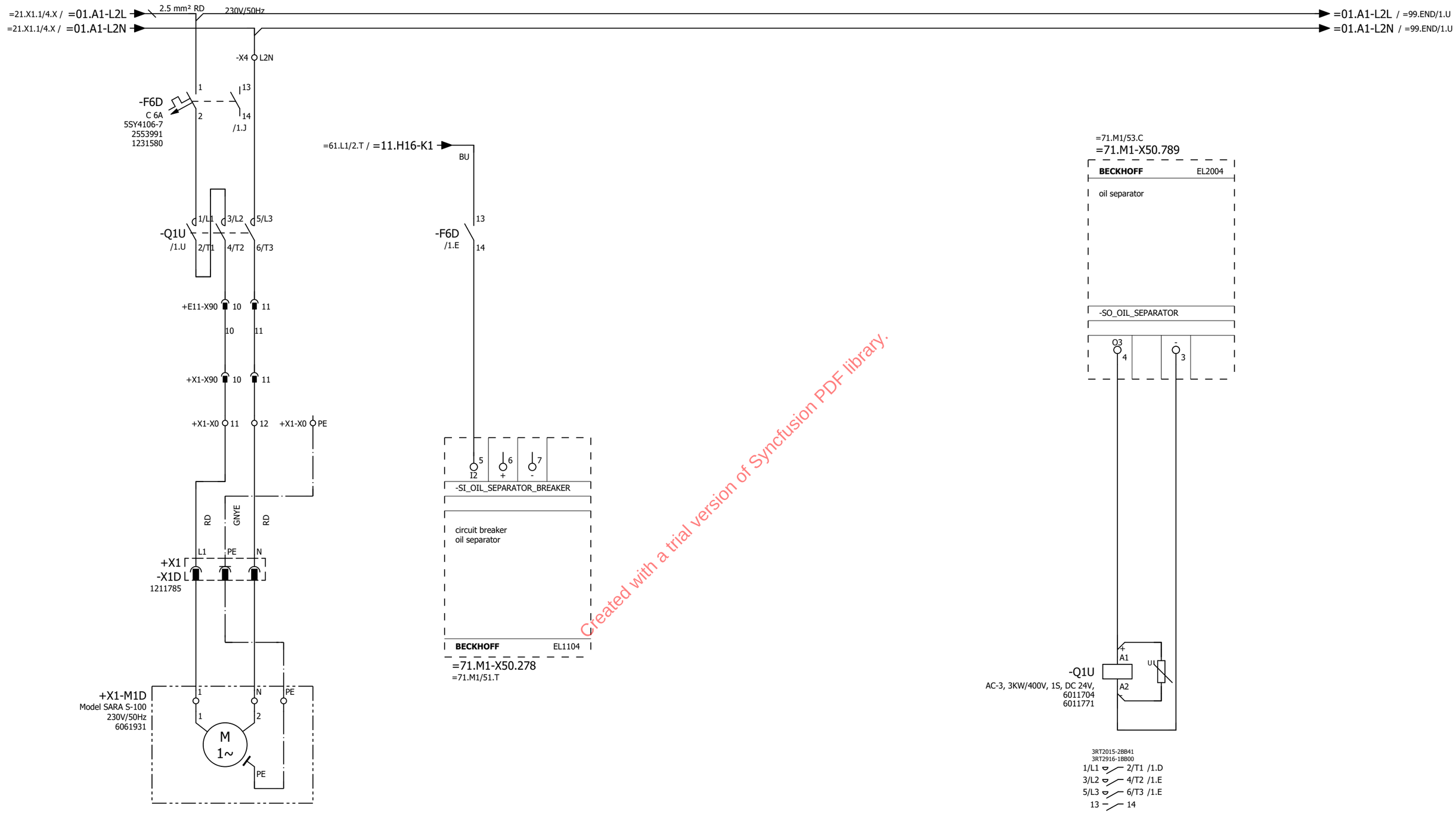
=.L5/10

=.L11/1

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	balancing device		= 61.L6	function page
			design.	PED						+ E11	1/1
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				140



Created with a trial version of Syncfusion PDF library.



Created with a trial version of Syncfusion PDF library.

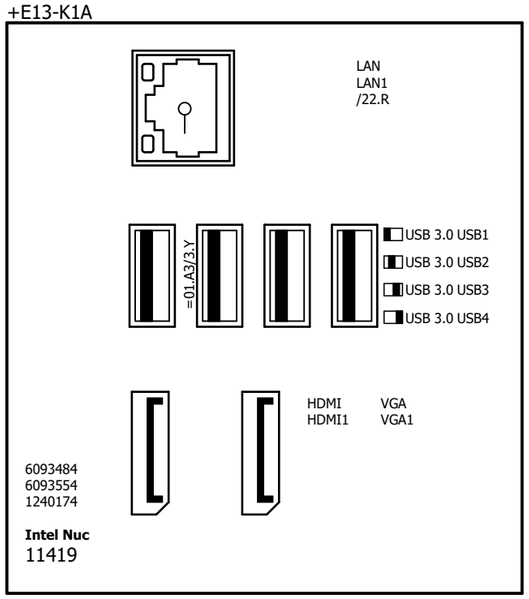
oil separator

=.L11/1

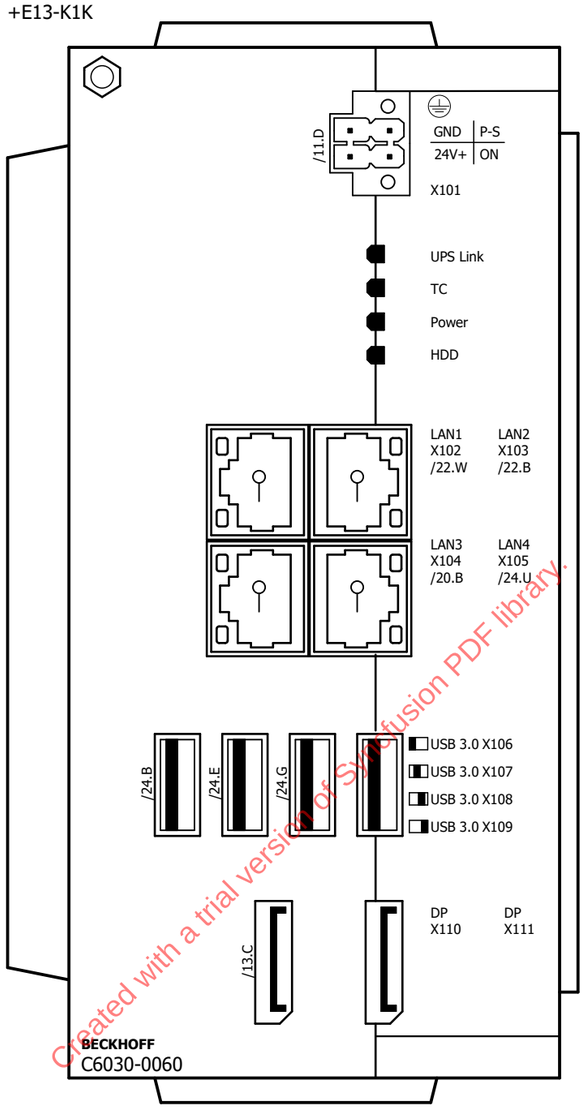
=71.M1/1

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	oil separator		= 61.L14	function page
			design.	PED						+ E11	1/1
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				142

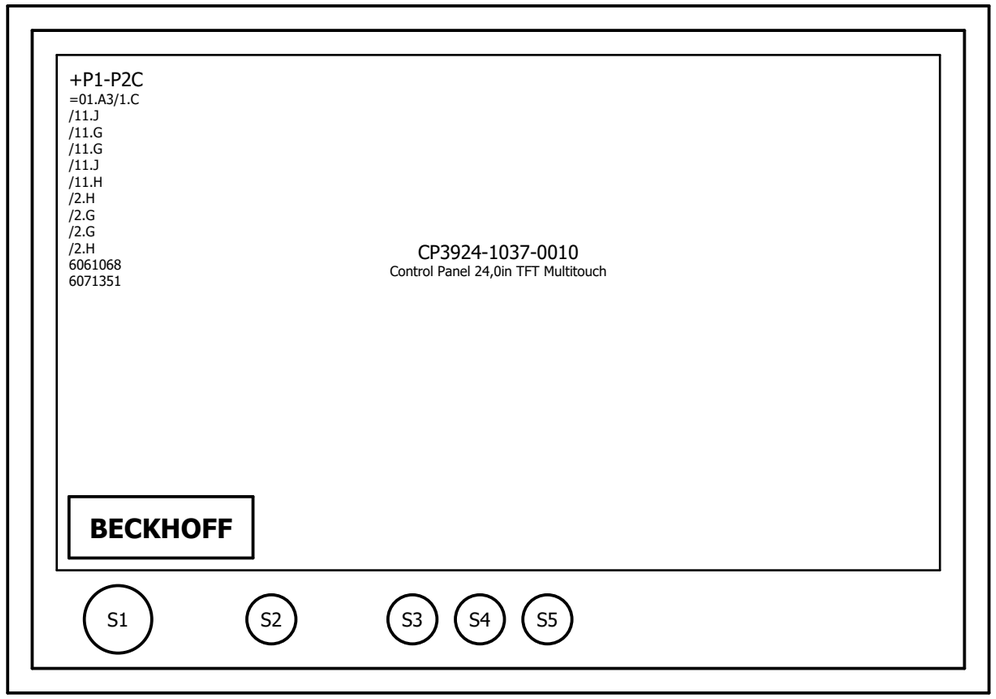
+E13-K1A

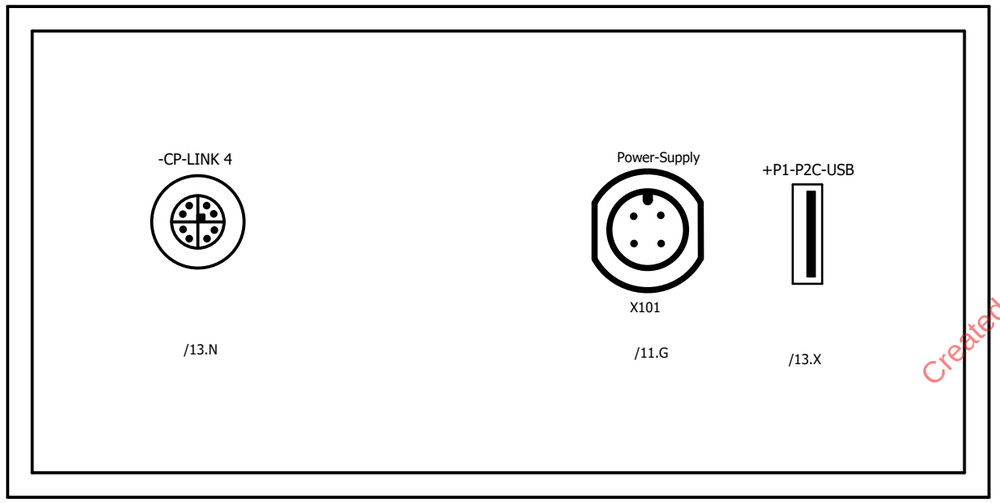


+E13-K1K



Created with a trial version of Syncfusion PDF library.





S1 - mushroom button red	emergency stop
S2 - illuminated push button yellow	emergency retreat
S3 - key switch momentary	selector switch 1. MSO 2 (set up mode/jog mode) 2. MSO 1 (automatic mode) 3. MSO 3 (special mode / process monitoring)> with password (optional) when Machine on: press for more than 3 seconds for emergency stop override
S4 - key switch latching	selection control panel
S5 - illuminated push button clear	function enable

Created with a trial version of Syncfusion PDF library.

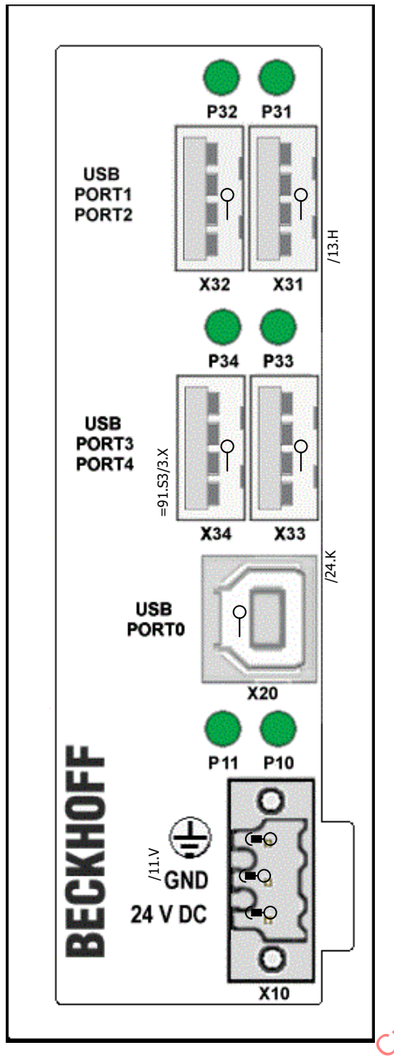
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	overview control panel +P1		= 71.M1
			design.	PED						+ E11
			check.						98290 WS450 KL x 5500 CNC Monolith	2953
change	date	name	norm		originally.	created for.	created by.			

function page 2/710

page 144

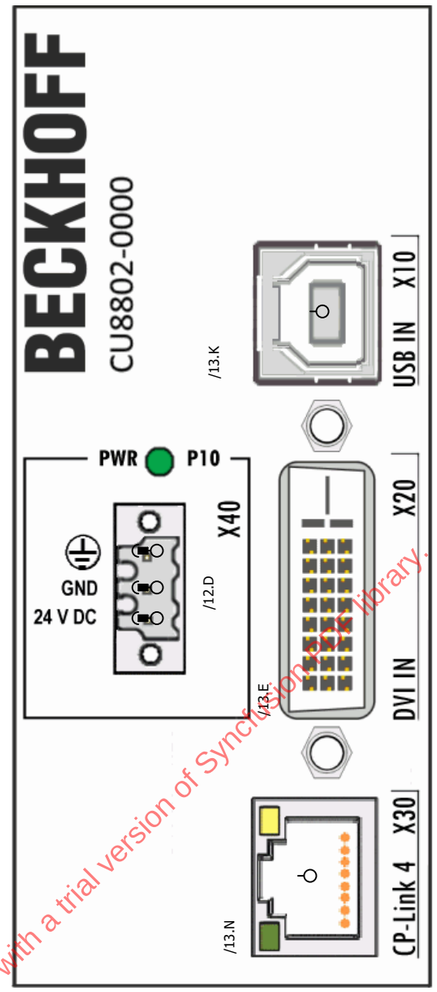
6049134

+E13-K4G



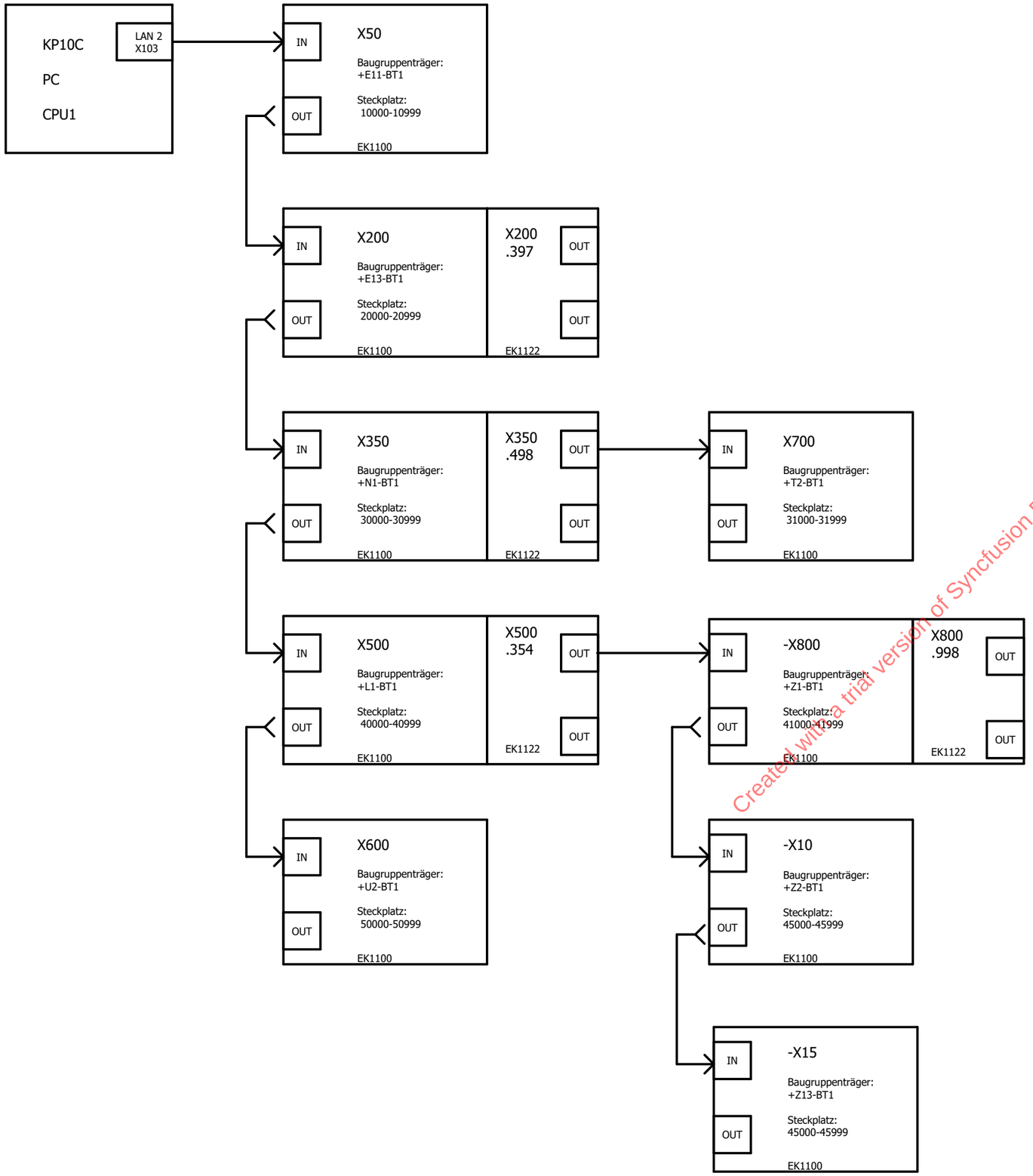
6056041
6205072

+E13-K4L



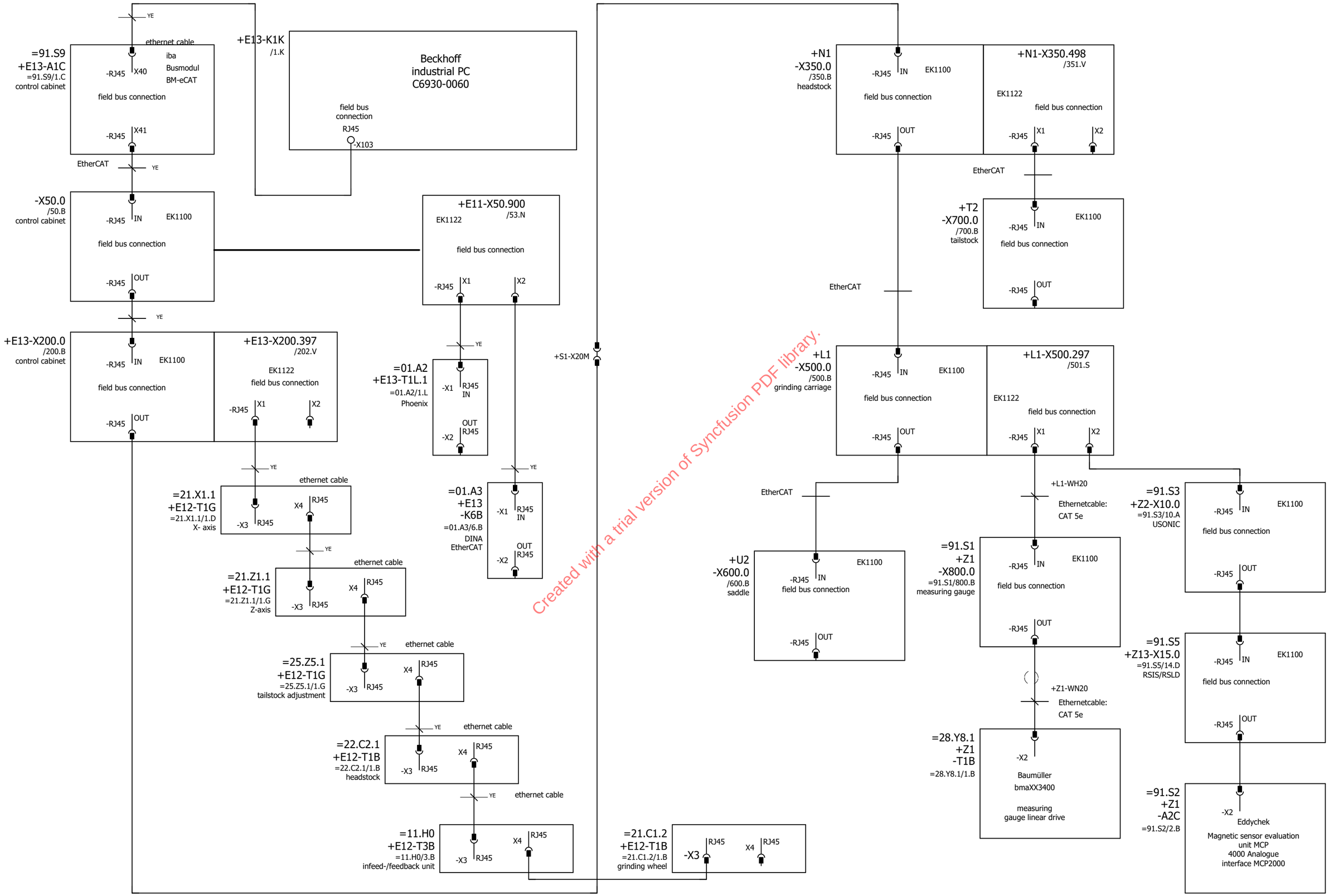
Created with a trial version of Synchronicity Library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	overview USB-extension		= 71.M1 + E11	function page 4/710
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 145
change	date	name	norm		originally.	created for.	created by.				



Created with a trial version of Syncfusion PDF library.

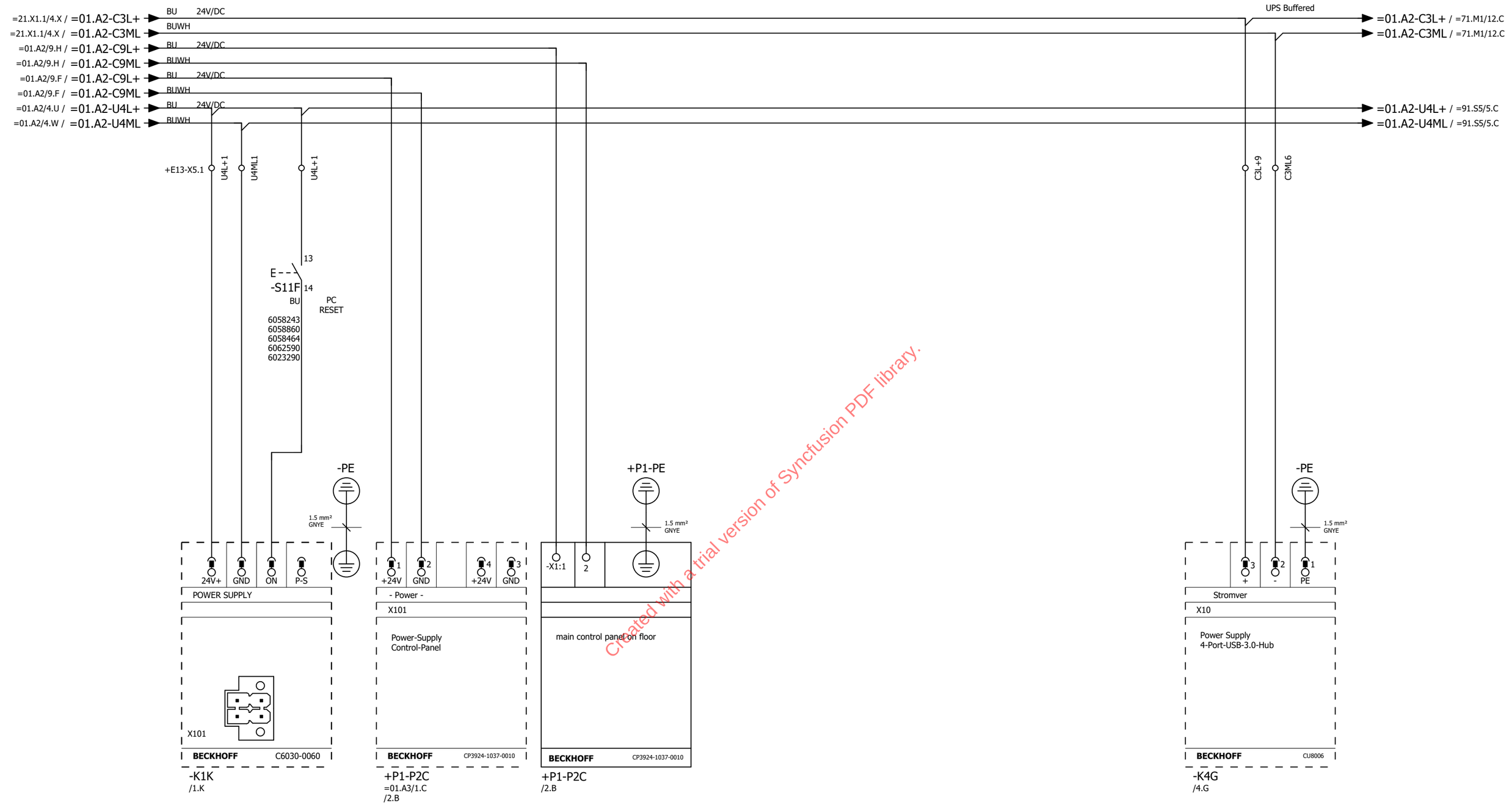
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	mounting rack topologie		= 71.M1	function page
			design.	PED						+ E11	9/710
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				146



Created with a trial version of Syncfusion PDF library.

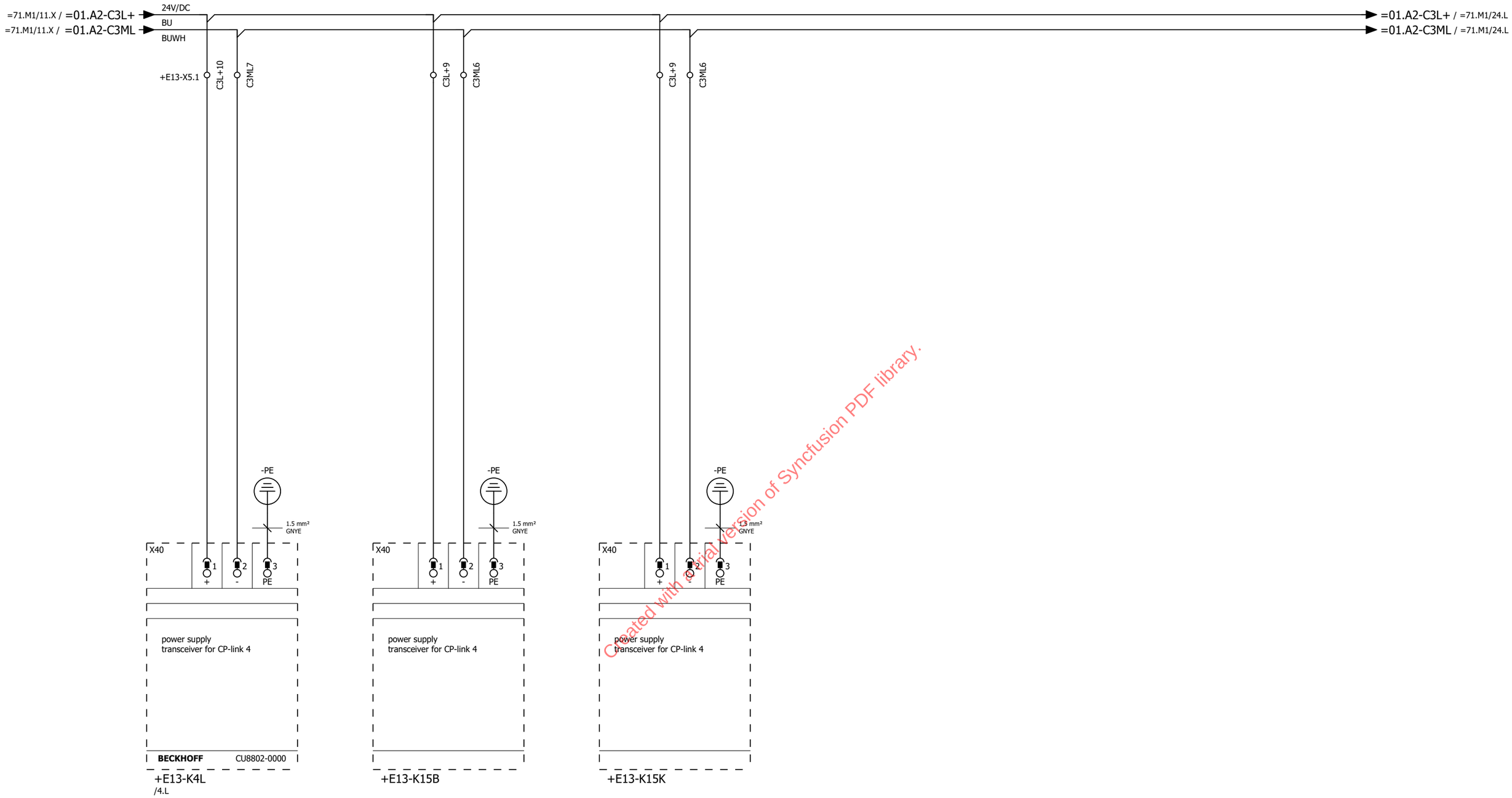
9 11

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	overview field bus coupler		= 71.M1 + E11	function page 10/710
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 147
change	date	name	norm		originally.	created for.	created by.				



Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	voltage supply		= 71.M1	function page
			design.	PED						+ E13	11/710
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				148

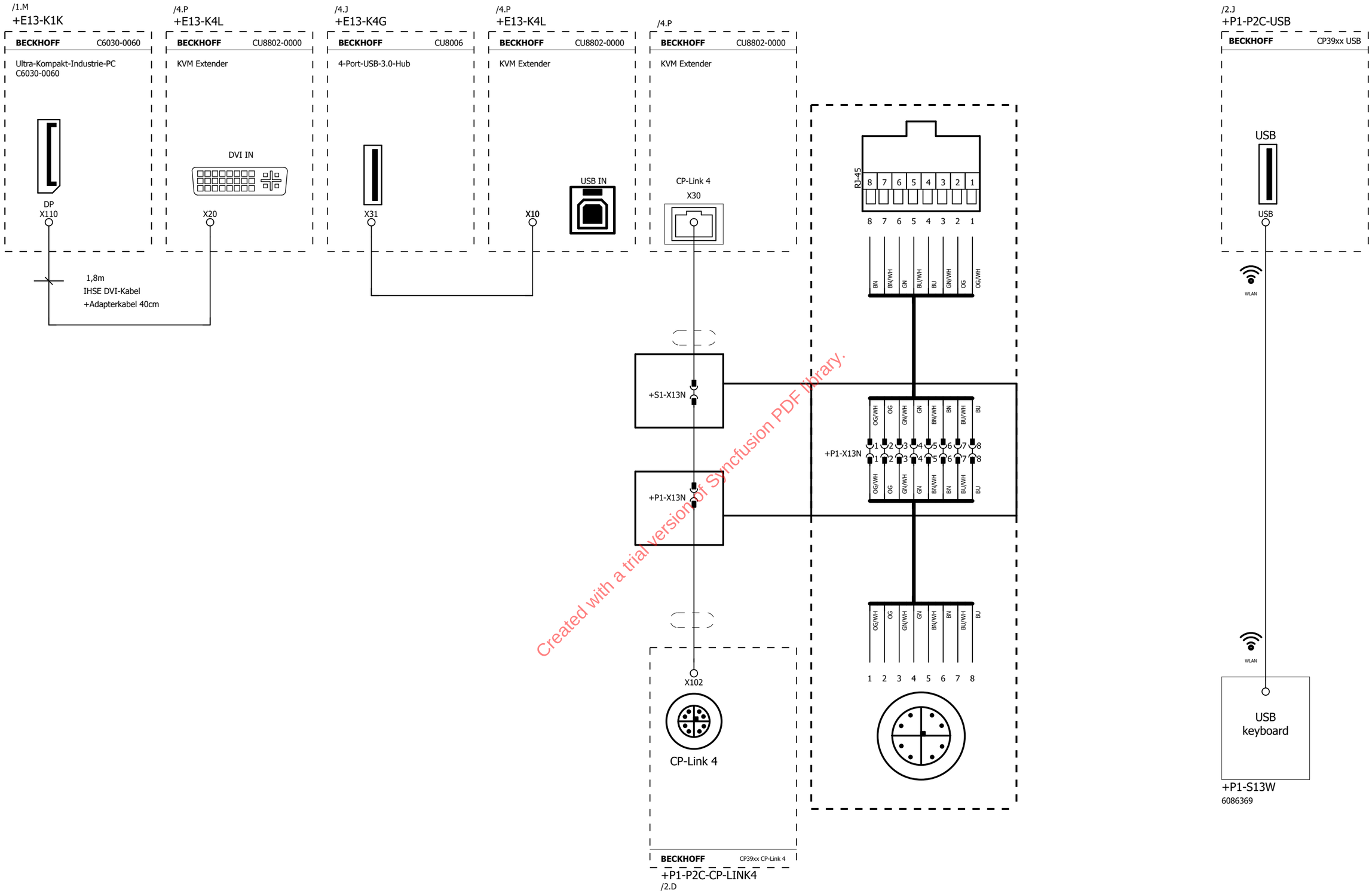


Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	voltage supply		= 71.M1
			design.	PED						+ E11
			check.						98290 WS450 KL x 5500 CNC Monolith	2953
change	date	name	norm		originally.	created for.	created by.			

function page 12/710

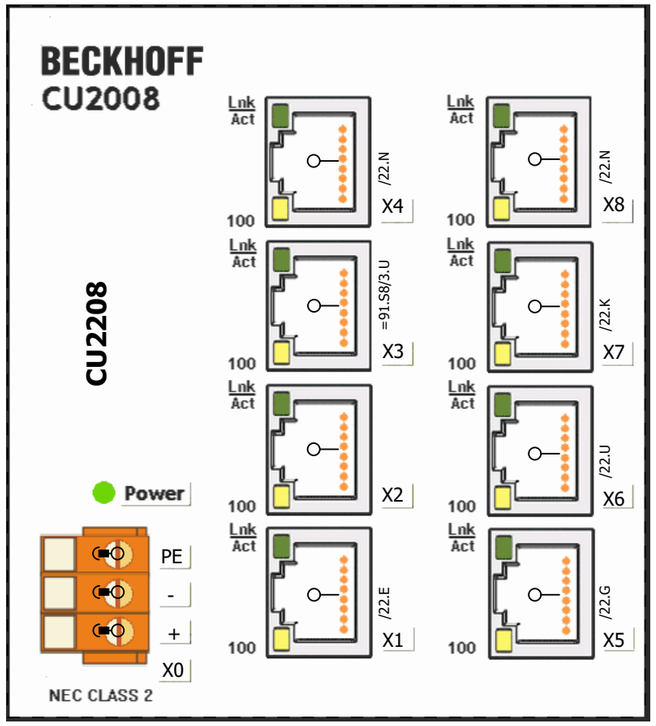
page 149



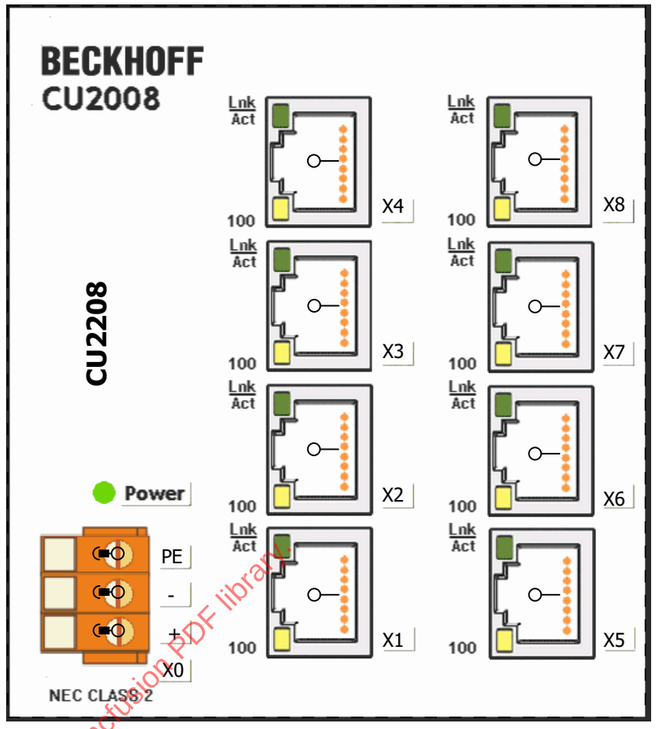
Created with a trial version of Syncfusion PDF Library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	main control panel on floor		= 71.M1	function page
			design.	PED						+ E11	13/710
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				150

6100470 +E13-K15E

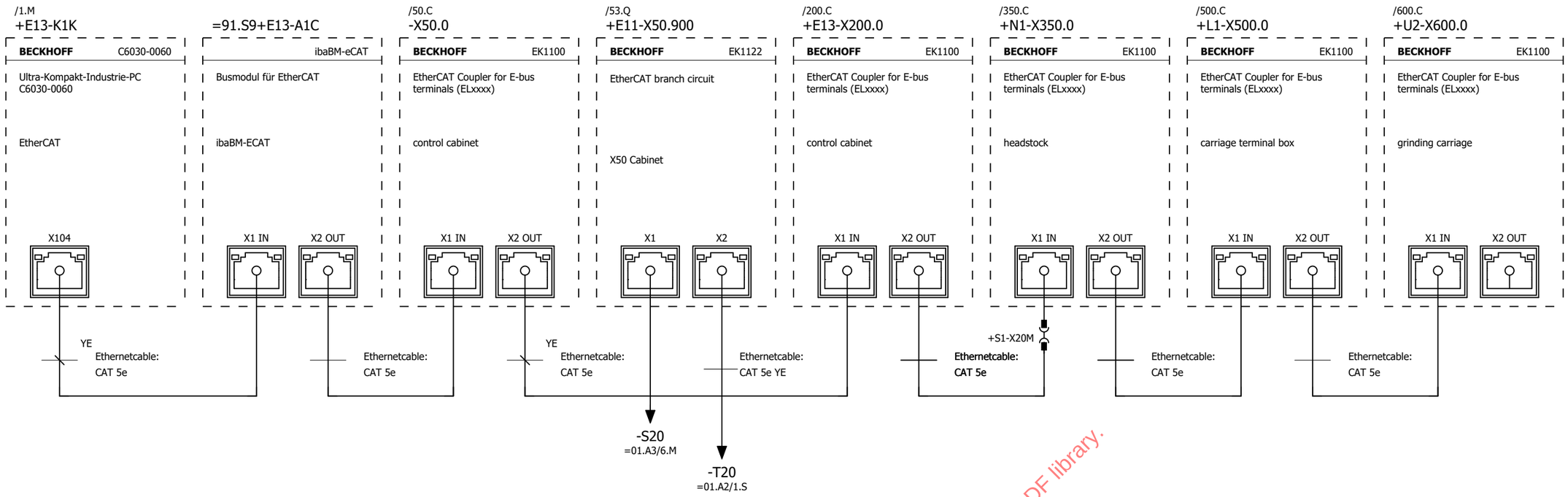


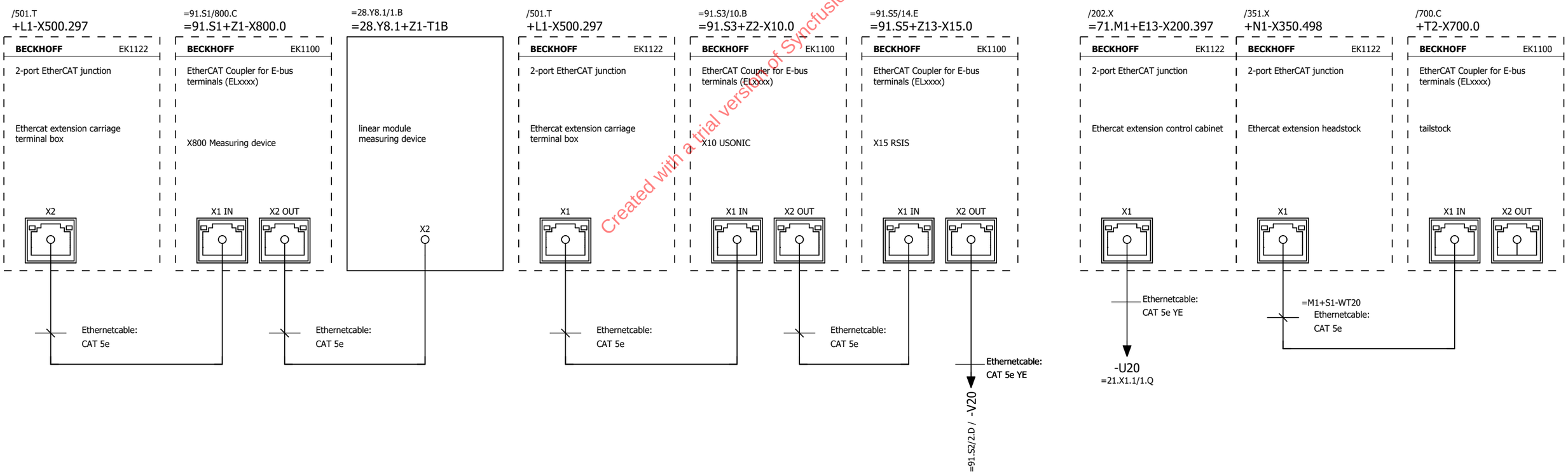
6100470 +E13-K10E



Created with a trial version of Syncfusion PDF library

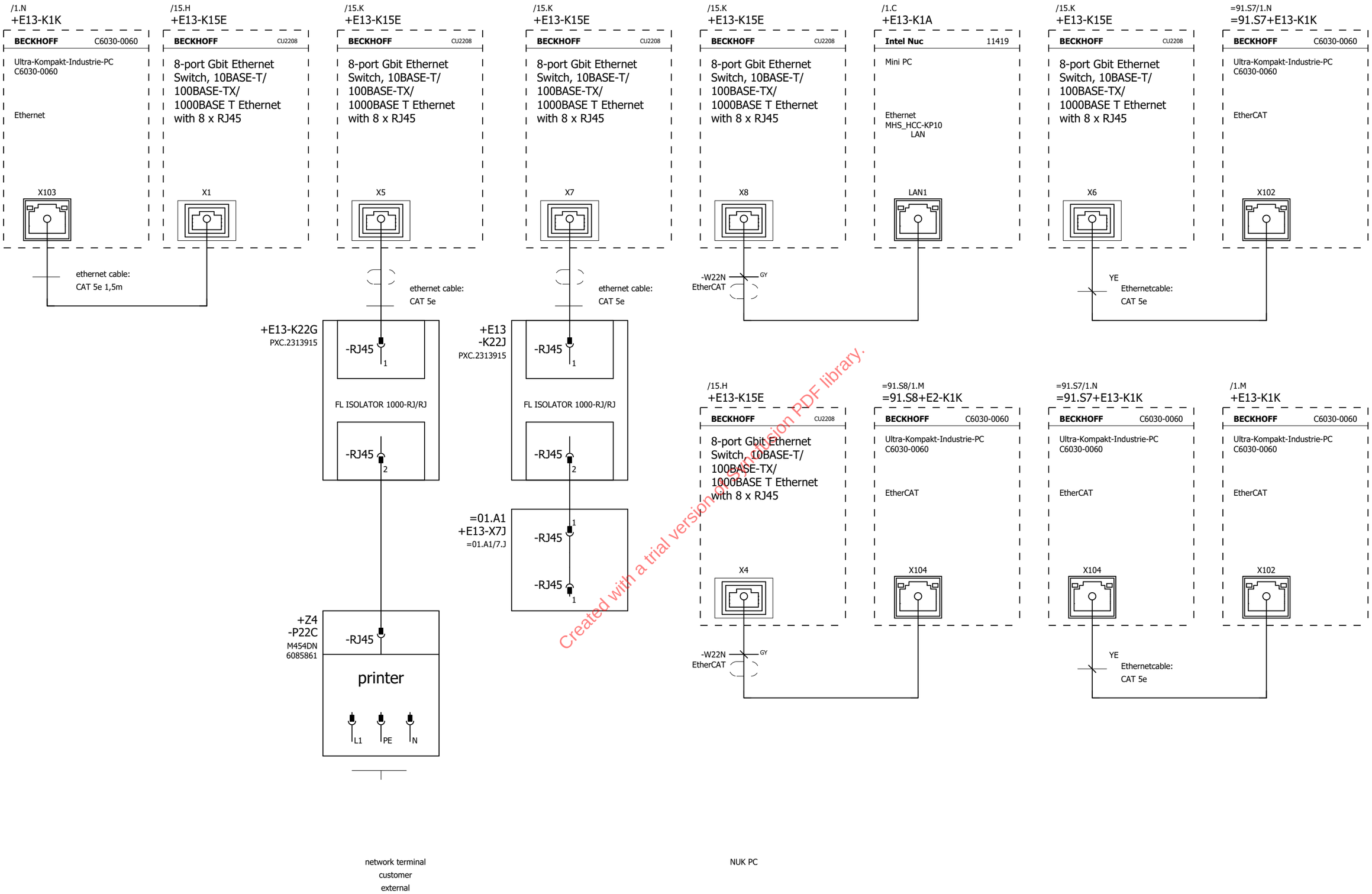
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	overview Ethernet Switch		= 71.M1	function page
			design.	PED						+ E11	15/710
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				151





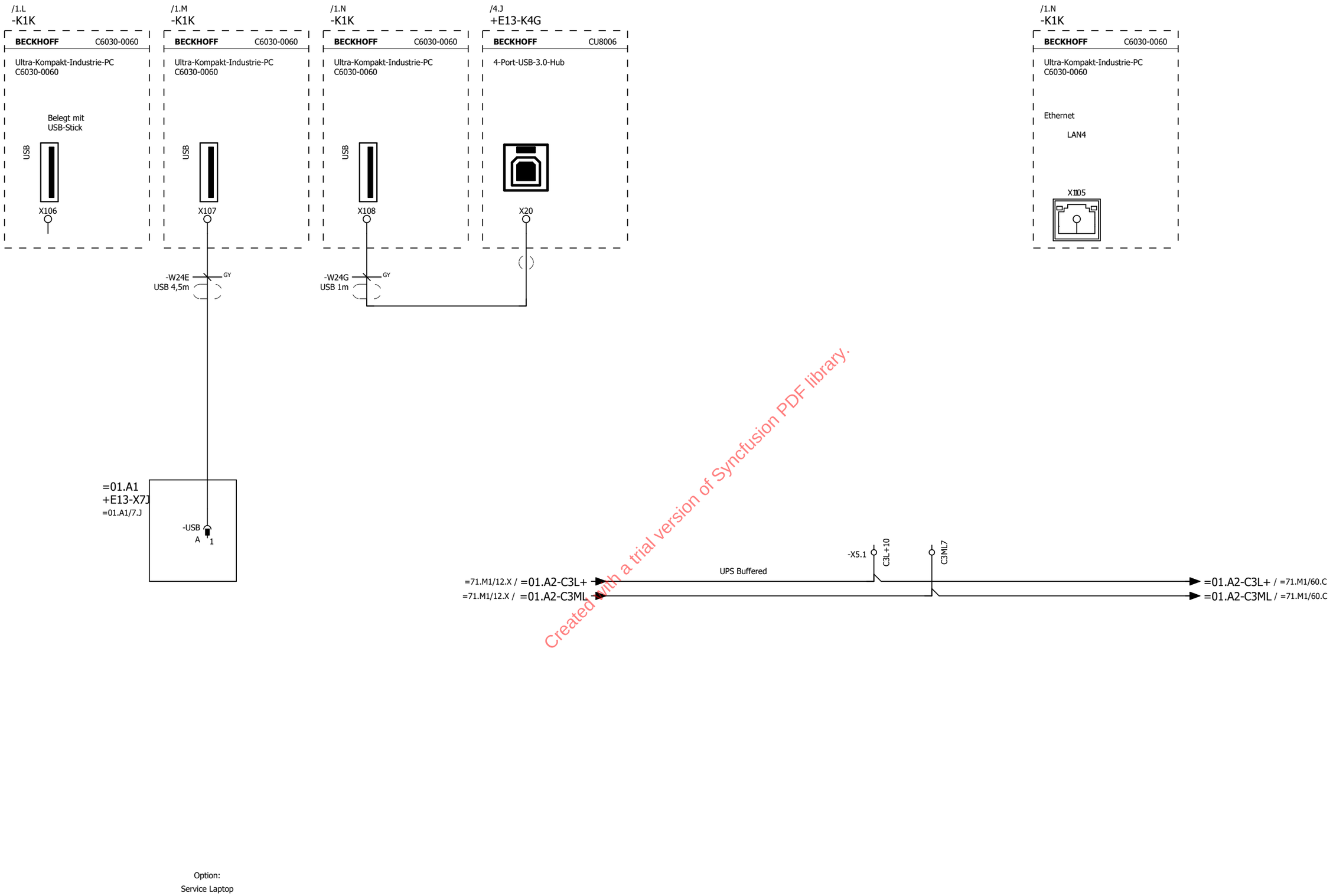
Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	EtherCAT interfaces		= 71.M1 / function page
			design.	PED						+ E11 / 20/710
			check.						98290 WS450 KL x 5500 CNC Monolith	2953 / page 152
change	date	name	norm		originally.	created for.	created by.			



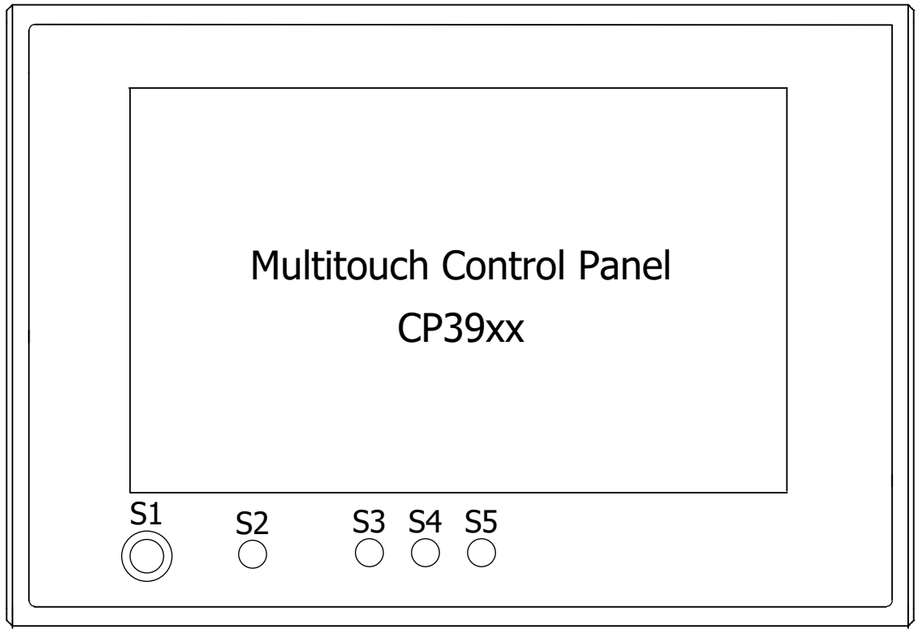
Created with a trial version of Infotech PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	ethernet interfaces		= 71.M1 + E11	function page 22/710
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 153
change	date	name	norm		originally.	created for.	created by.				



Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	USB interfaces		= 71.M1	function page
			design.	PED						+ E13	24/710
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				154



S1 - mushroom button red	Emergency stop 1NO on terminal 1NO for PLC
S2 - illuminated push button yellow	Emergency retraction 1S on terminal 1S for PLC
S3 - key switch momentary	Operating mode selector switch 2S on terminal 2S for PLC
S4 - key switch latching	select control panel 1S on terminal 1S for PLC
S5 - illuminated push button clear	Function enable 1S on terminal 1S for PLC 1ML via PLC

S1

DI_A3_E_STOP

P_CntrStation.fbMain_Panel.xxx.DI_A3_E_STOP
P_CntrStation.fbSec_Panel.xxx.DI_A3_E_STOP

S2

DI_PB_X_RETRACT

P_CntrStation.fbMain_Panel.xxx.DI_PB_X_RETRACT
P_CntrStation.fbSec_Panel.xxx.DI_PB_X_RETRACT

S3

DI_KS_OPERATION_MODE_RIGHT

P_CntrStation.fbMain_Panel.xxx.DI_KS_OPERATION_MODE_RIGHT
P_CntrStation.fbSec_Panel.xxx.DI_KS_OPERATION_MODE_RIGHT

DI_KS_OPERATION_MODE_LEFT

P_CntrStation.fbMain_Panel.xxx.DI_KS_OPERATION_MODE_LEFT
P_CntrStation.fbSec_Panel.xxx.DI_KS_OPERATION_MODE_LEFT

S4

DI_KS_PANEL_SELECT

P_CntrStation.fbMain_Panel.xxx.DI_KS_PANEL_SELECT
P_CntrStation.fbSec_Panel.xxx. DI_KS_PANEL_SELECT

S5

DI_PB_FUNCTION_ENABLE

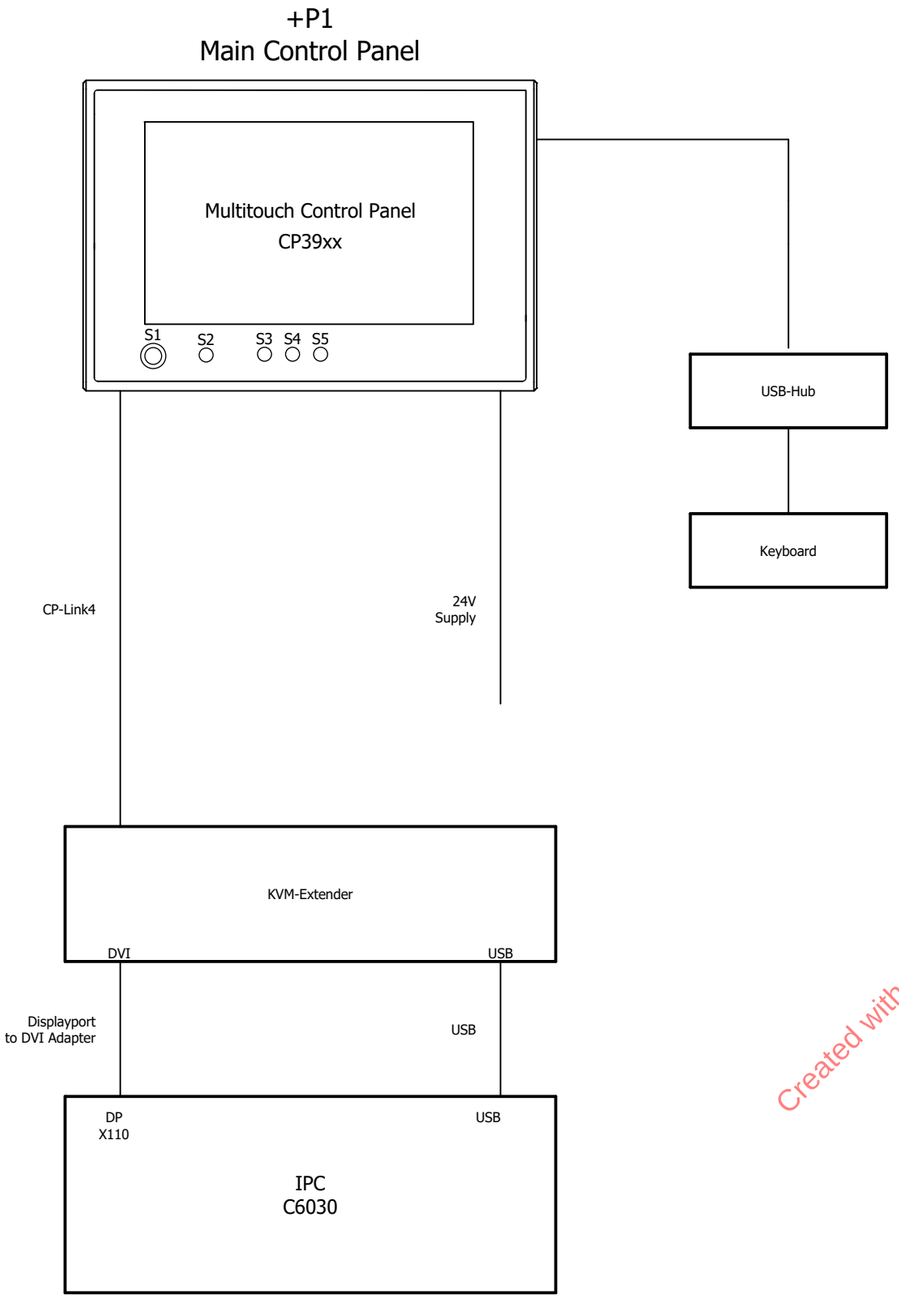
P_CntrStation.fbMain_Panel.xxx.DI_PB_FUNCTION_ENABLE
P_CntrStation.fbSec_Panel.xxx.DI_PB_FUNCTION_ENABLE

DO_FUNCTION_ENABLE_LIGHT

P_CntrStation.fbMain_Panel.xxx.DO_FUNCTION_ENABLE_LIGHT
P_CntrStation.fbSec_Panel.xxx.DO_FUNCTION_ENABLE_LIGHT

Created with a trial version of Syncfusion PDF library.

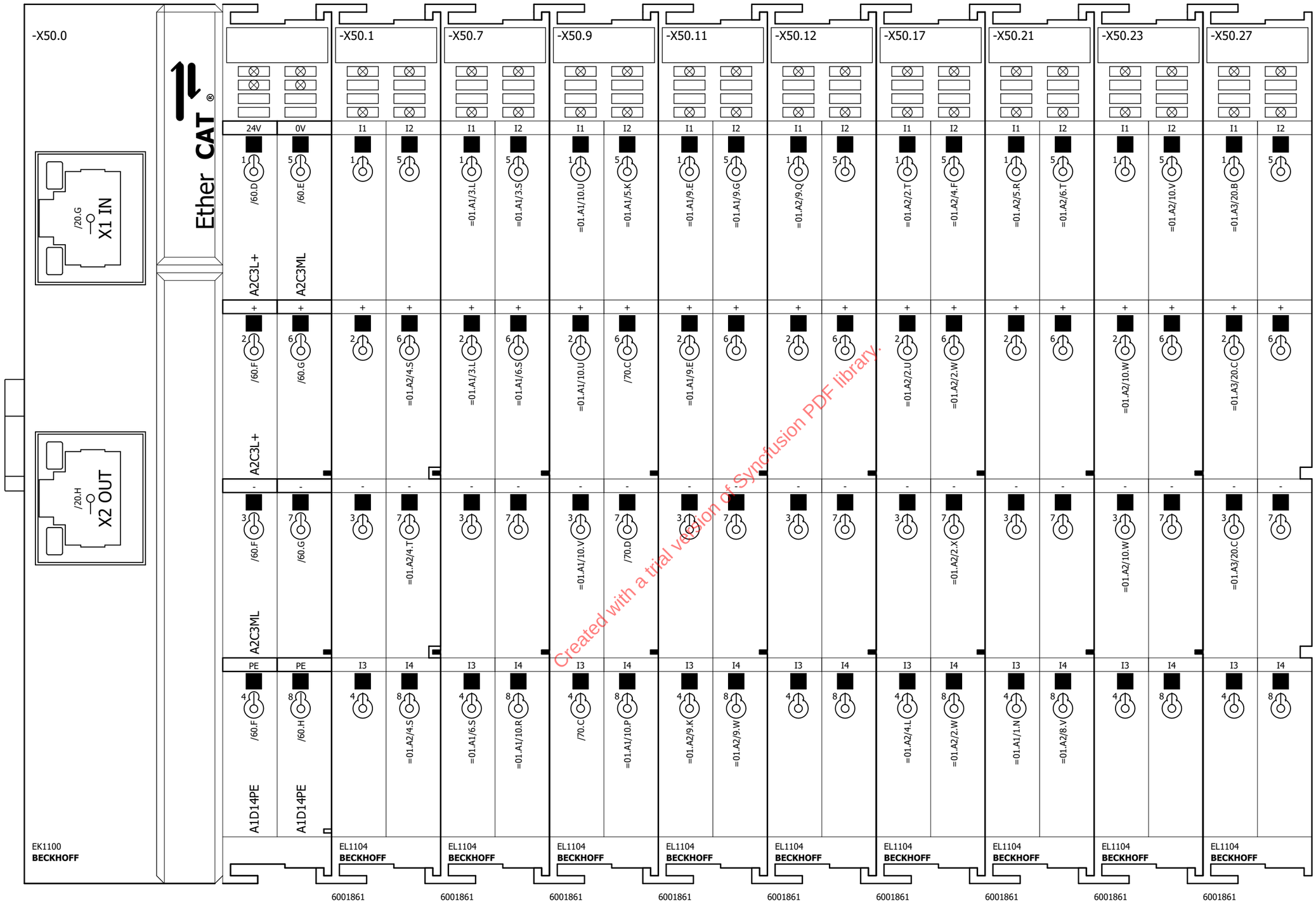
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	control panels - software variables		= 71.M1	function page
			design.	PED						+ E11	40/710
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				155



Created with a trial version of Syncfusion PDF library.

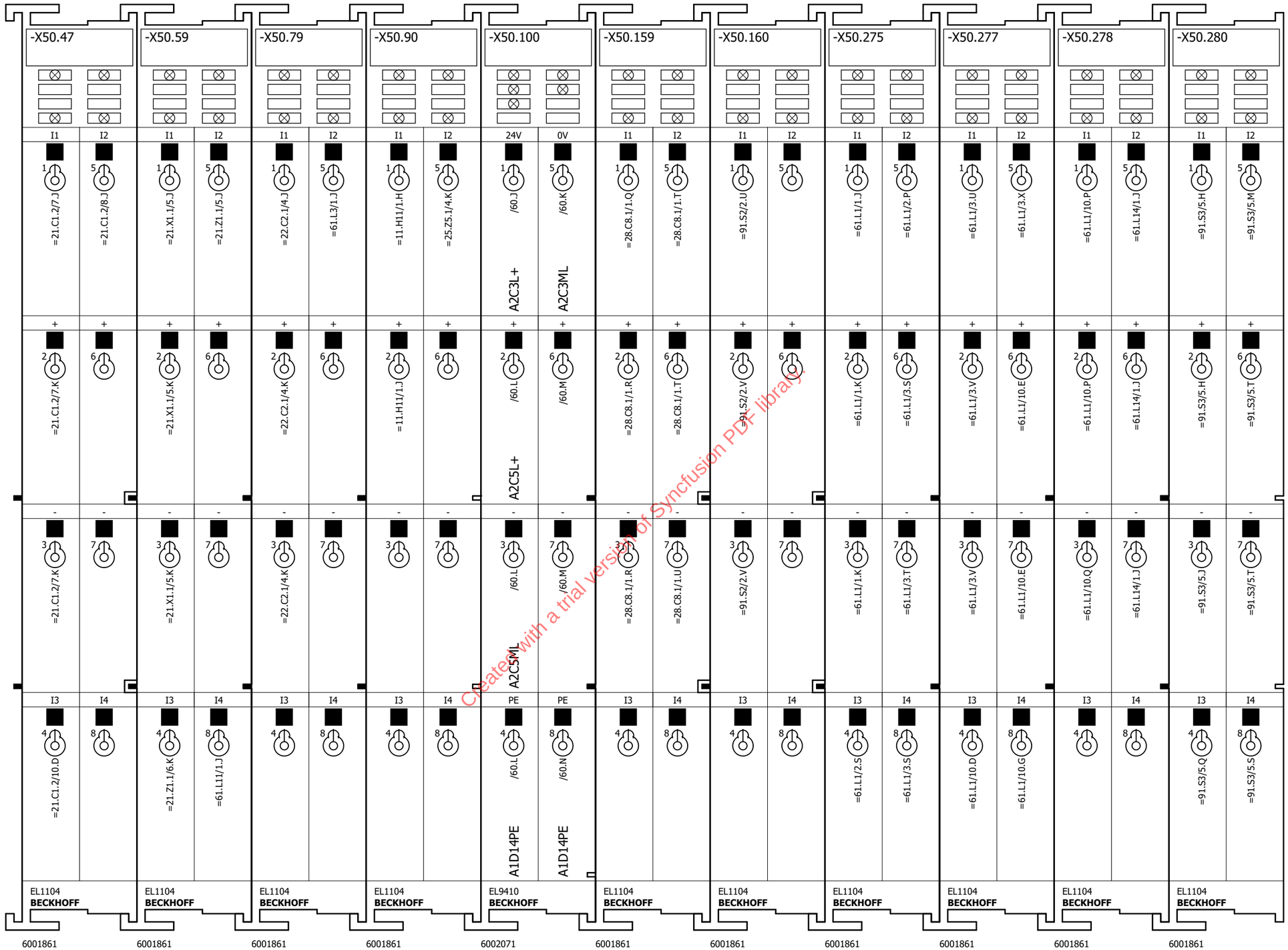
S1 - mushroom button red	emergency stop
S2 - push button yellow	emergency retreat
S3 - key switch momentary	operating mode switch
S4 - key switch latching	selection control panel
S5 - illuminated push button clear	function enable

1226770



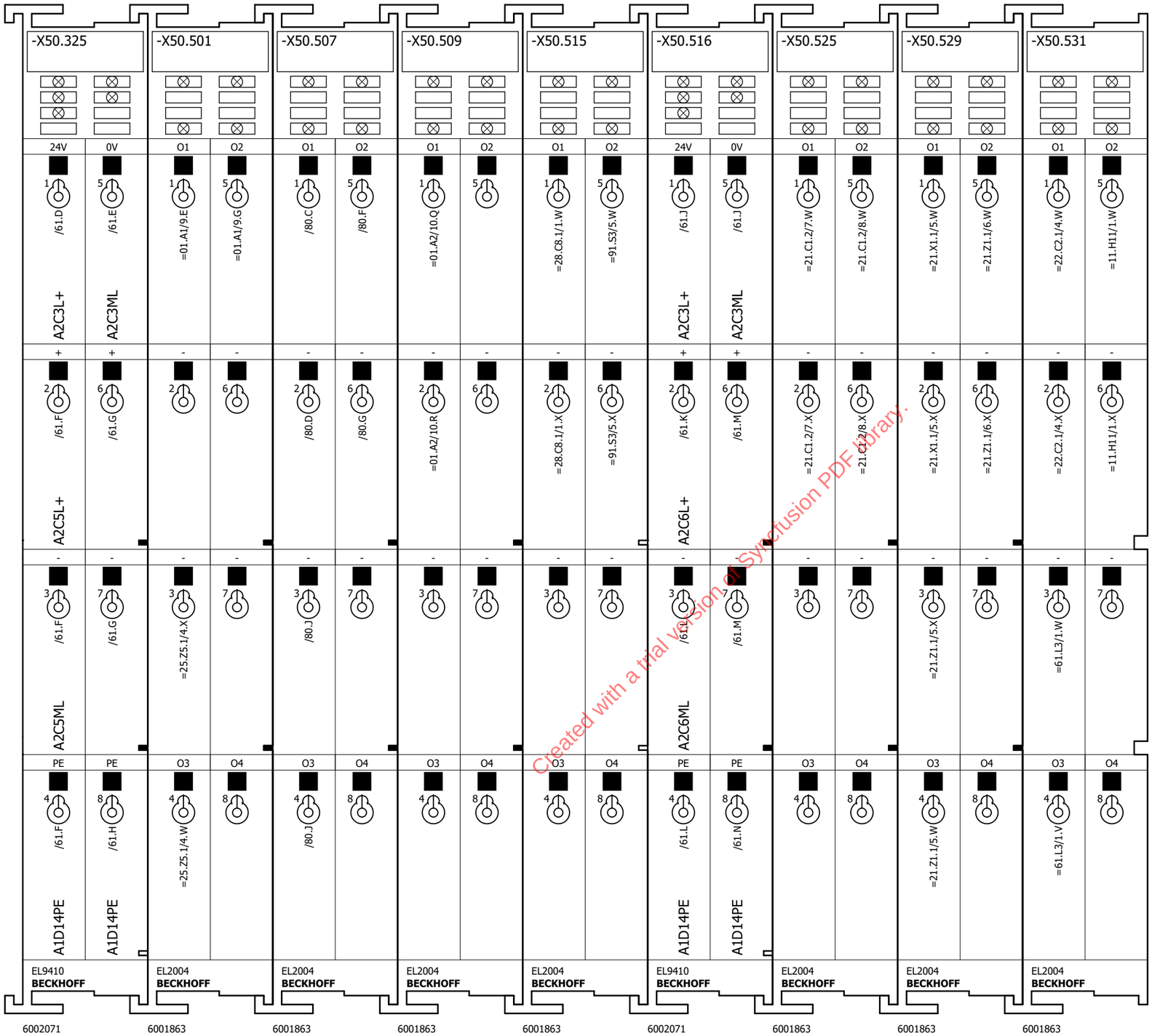
Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	assembly bus coupler control cabinet +E1		= 71.M1 + E11	function page 50/710
			design.	PED						
			check.					98290 WS450 KL x 5500 CNC Monolith	2953	page 157
change	date	name	norm		originally.	created for.	created by.			



Created with a trial version of Syncfusion PDF library

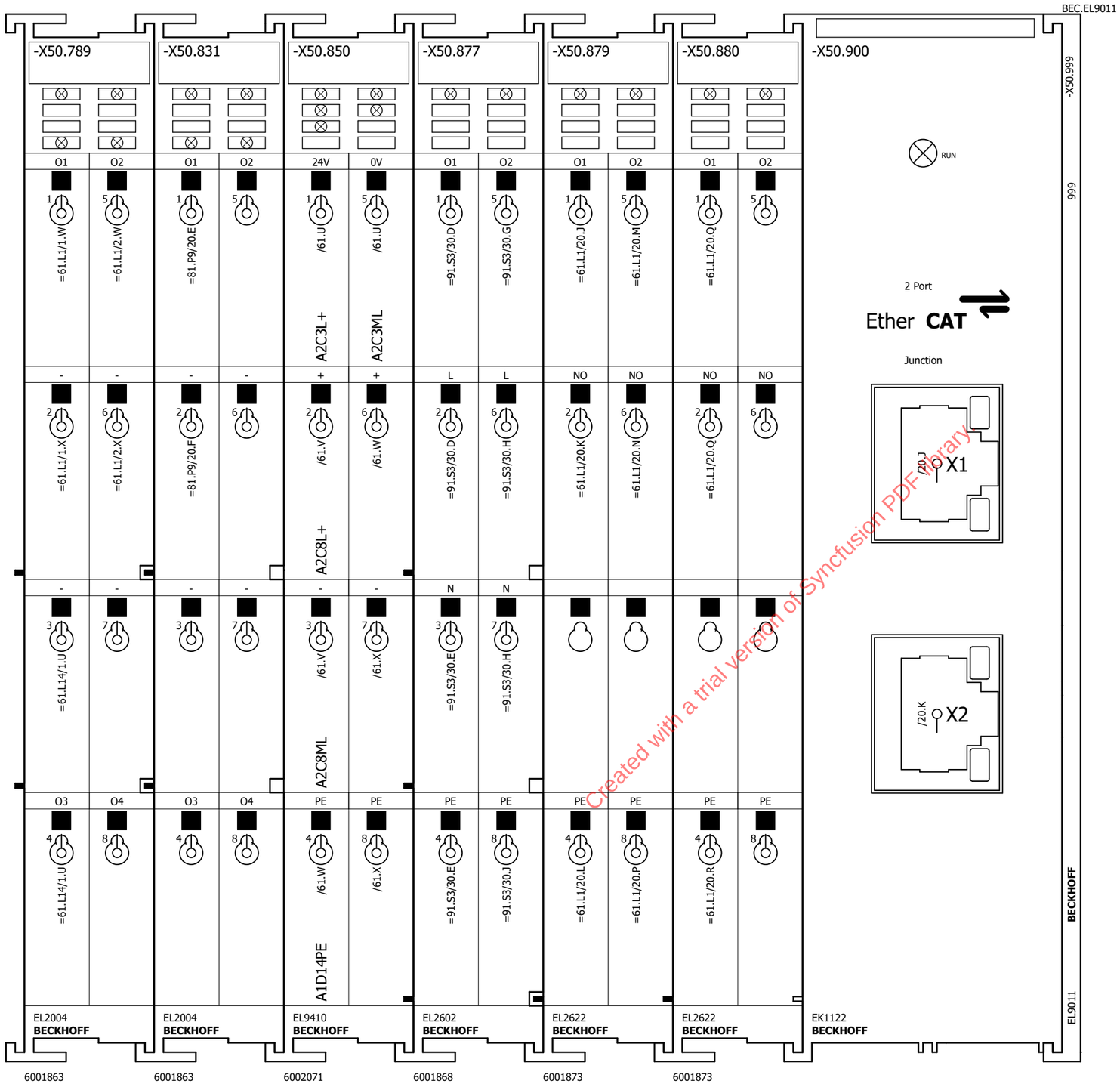
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	assembly bus coupler control cabinet +E1		= 71.M1 + E11	function page 51/710
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 158
change	date	name	norm		originally.	created for.	created by.				



Created with a trial version of Syncfusion PDF Library.

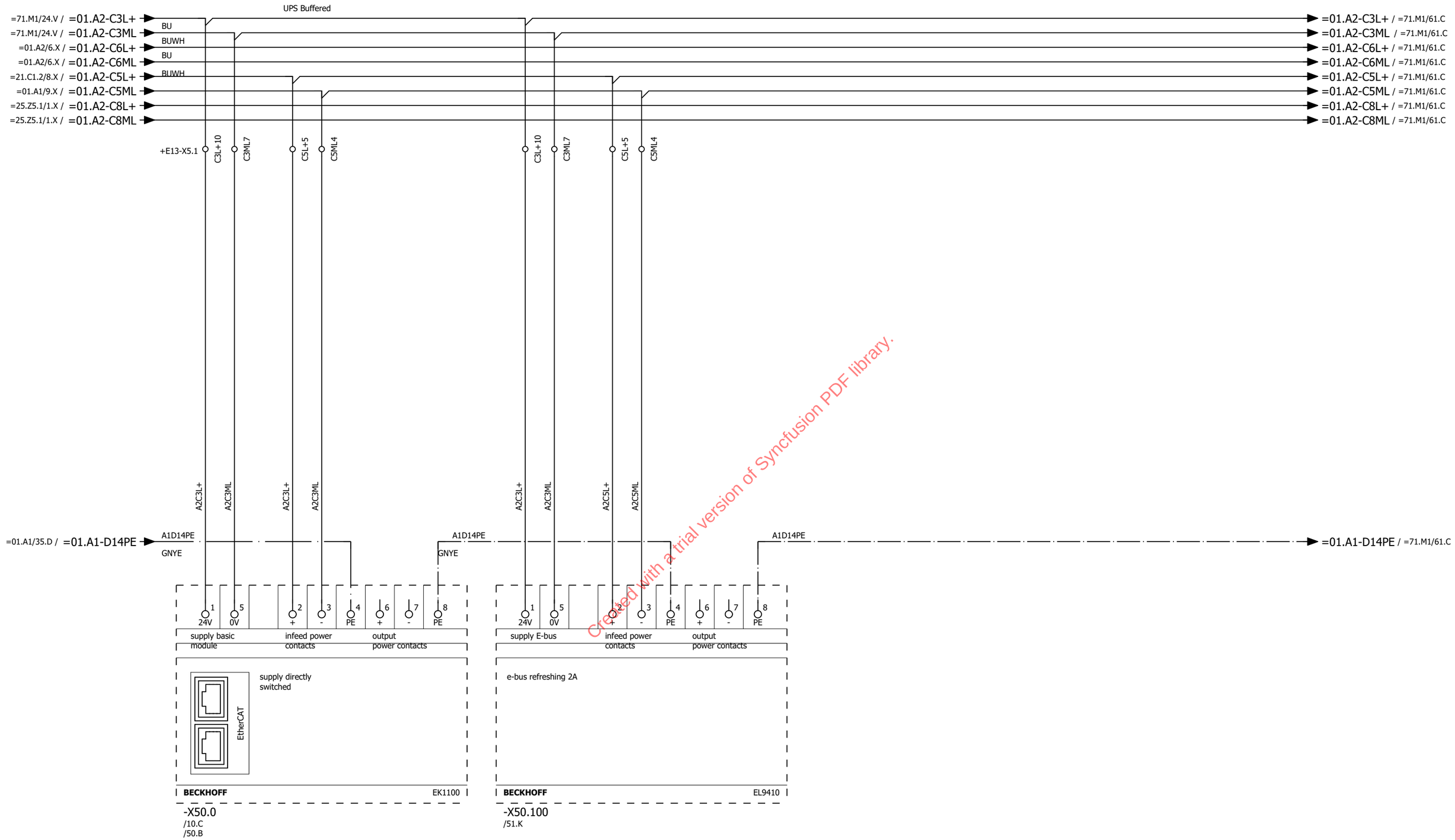
51 53

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	assembly bus coupler control cabinet +E1		= 71.M1 + E11	function page 52/710
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 159
change	date	name	norm		originally.	created for.	created by.				



Created with a trial version of Syncfusion PDF Library

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	assembly bus coupler control cabinet +E1		= 71.M1 + E11	function page 53/710
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 160
change	date	name	norm		originally.	created for.	created by.				



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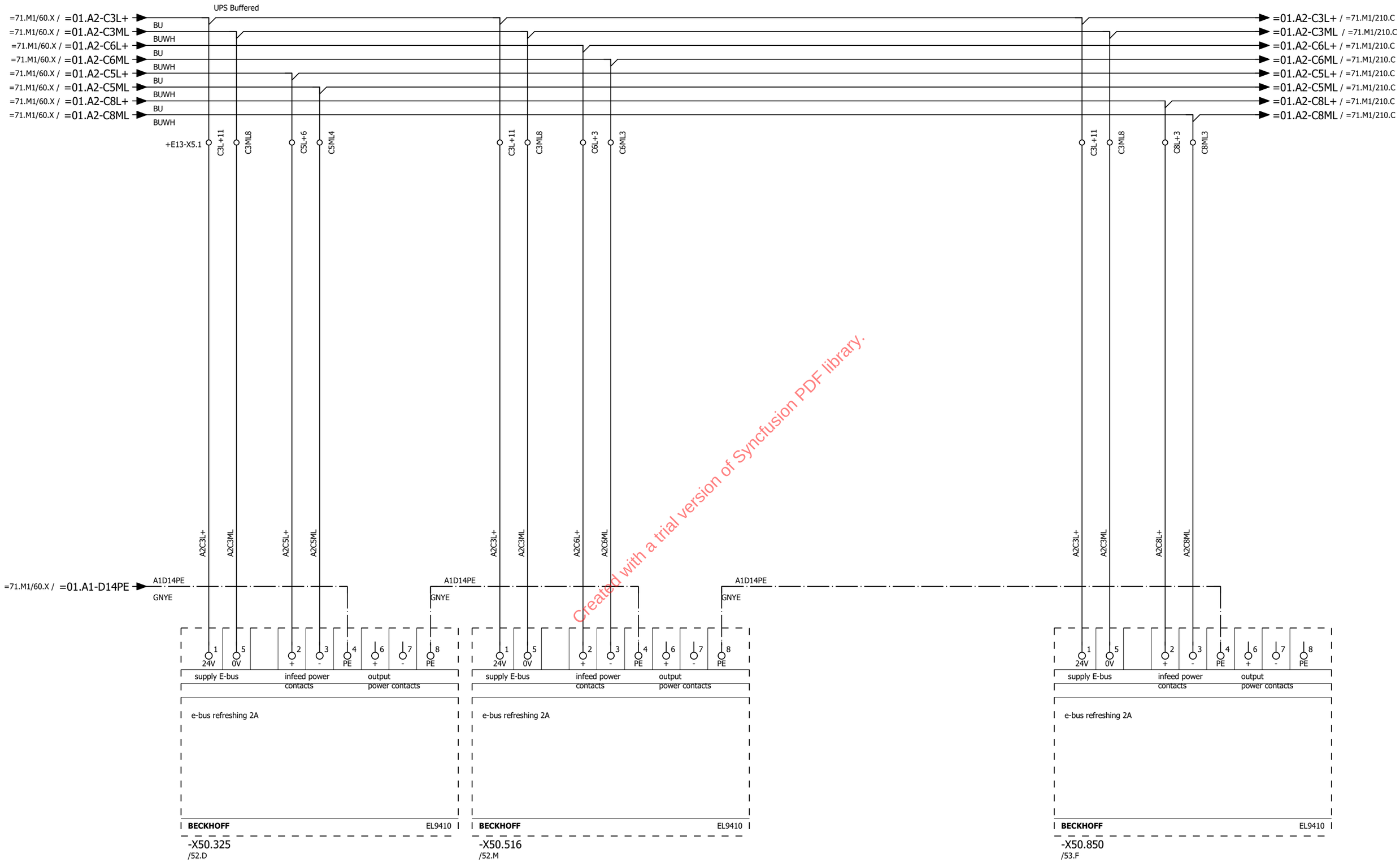
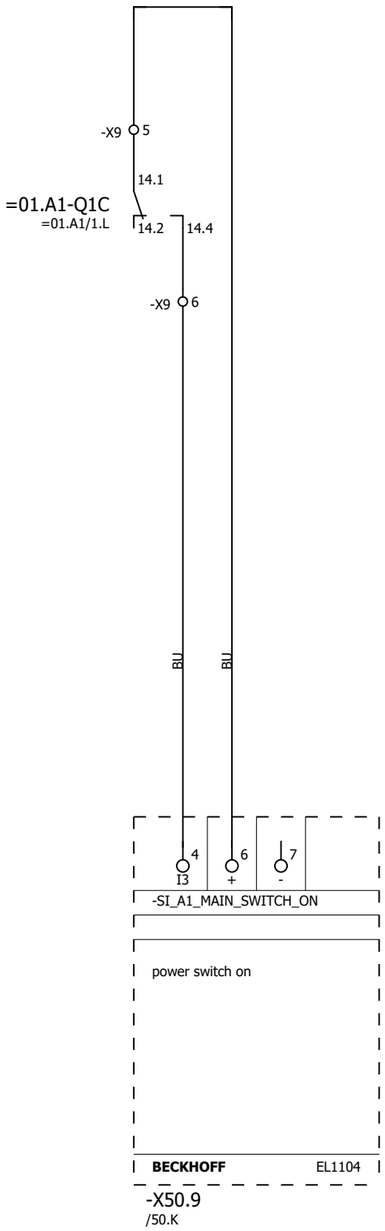
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	supply Beckhoff modules X50		= 71.M1 / + E11	function page 60/710
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 161
change	date	name	norm		originally.	created for.	created by.				



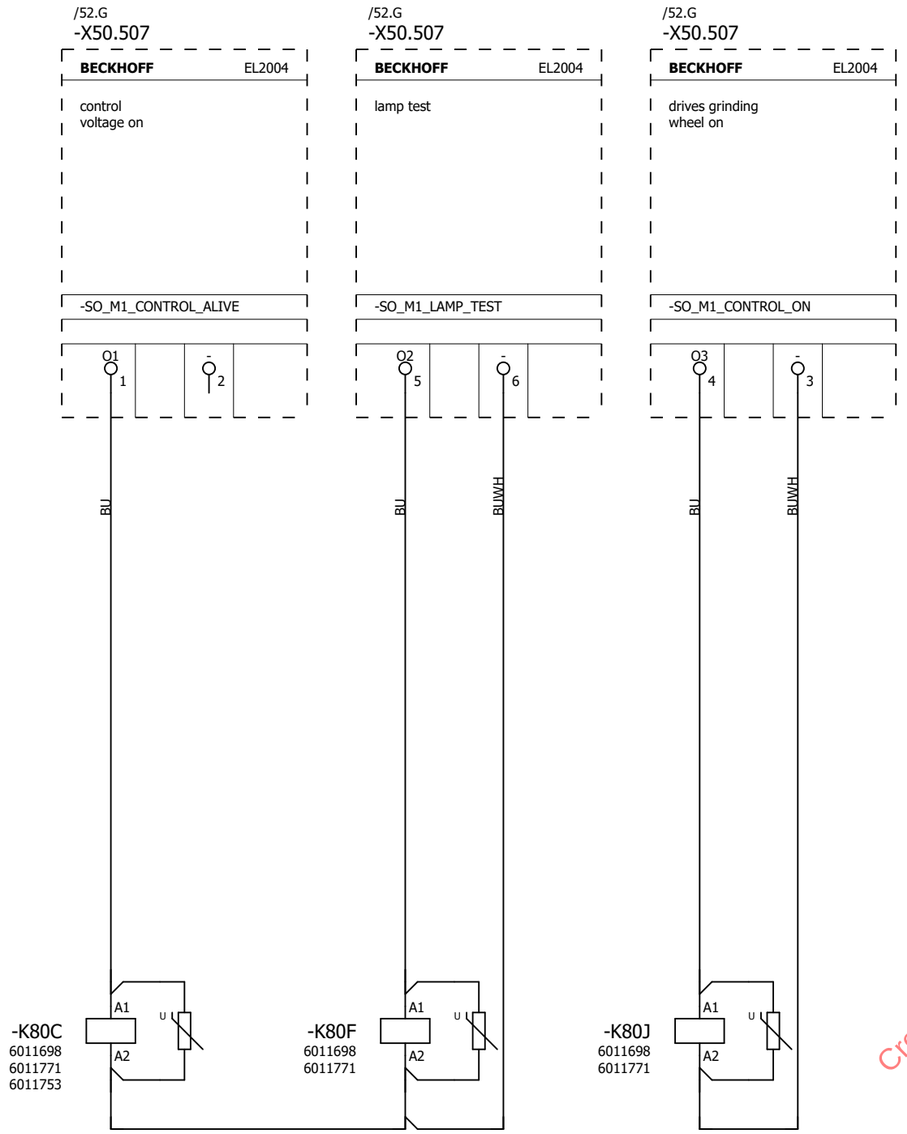
Created with a trial version of Syncfusion PDF library.

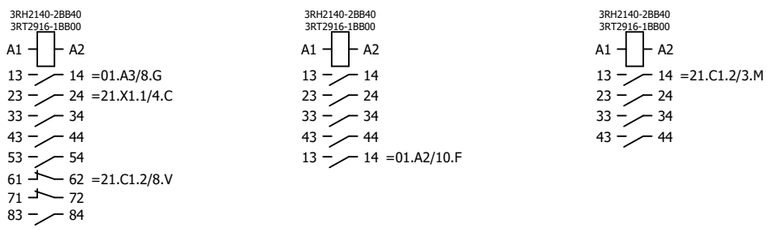
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	supply Beckhoff modules X50		= 71.M1 + E11	function page 61/710
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 162
change	date	name	norm		originally.	created for.	created by.				



Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	digital input terminals control cabinet +E1		= 71.M1 + E11	function page 70/710
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 163
change	date	name	norm		originally.	created for.	created by.				





Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	digital output terminals control cabinet +E1 unswitched		= 71.M1 + E11	function page 80/710
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 164
change	date	name	norm		originally.	created for.	created by.				

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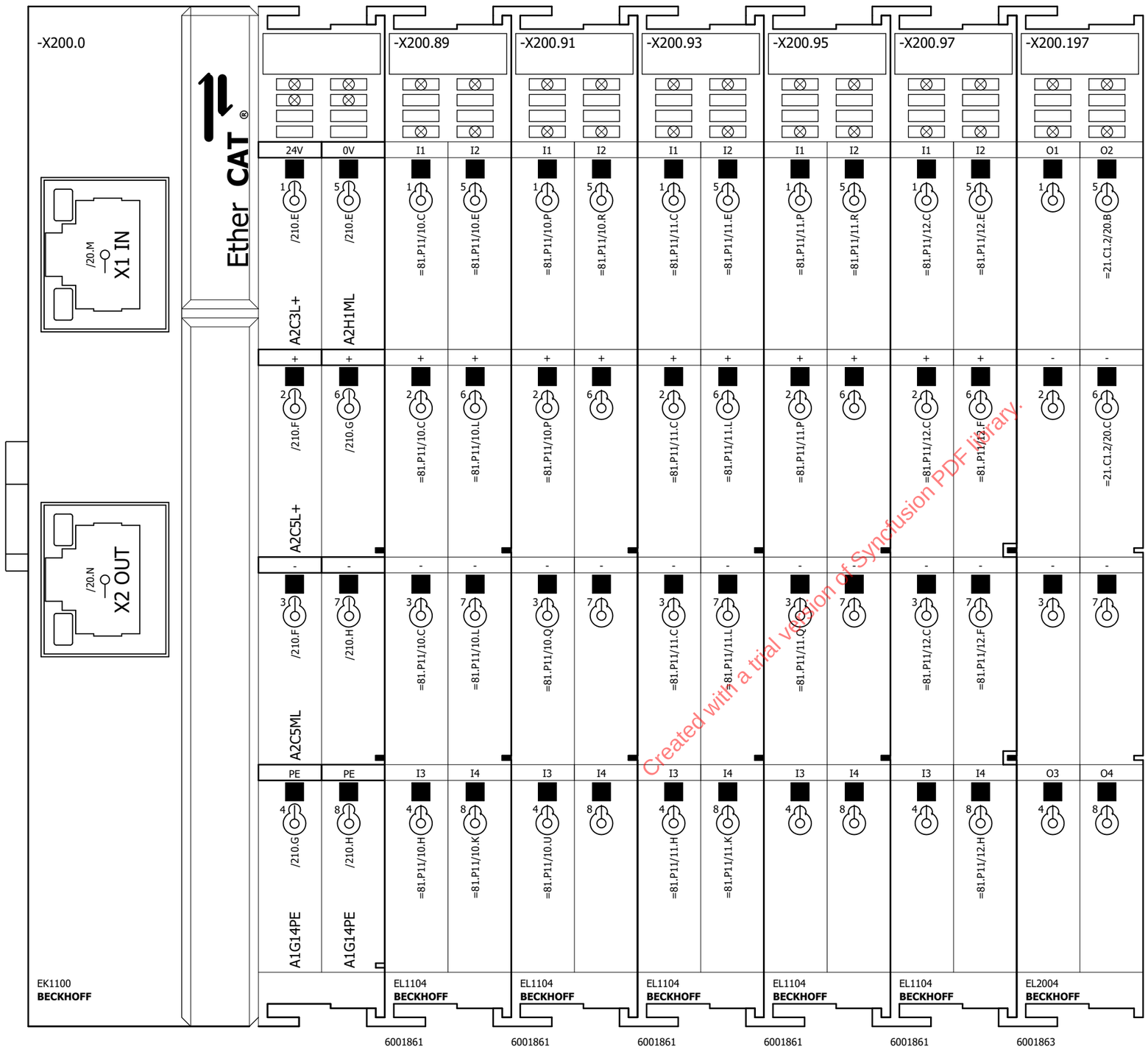

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	assembly bus coupler control cabinet +E1		= 71.M1 + E13	function page 200/710
			design.	PED						
			check.					98290 WS450 KL x 5500 CNC Monolith	2953	page 165
change	date	name	norm		originally.	created for.	created by.			

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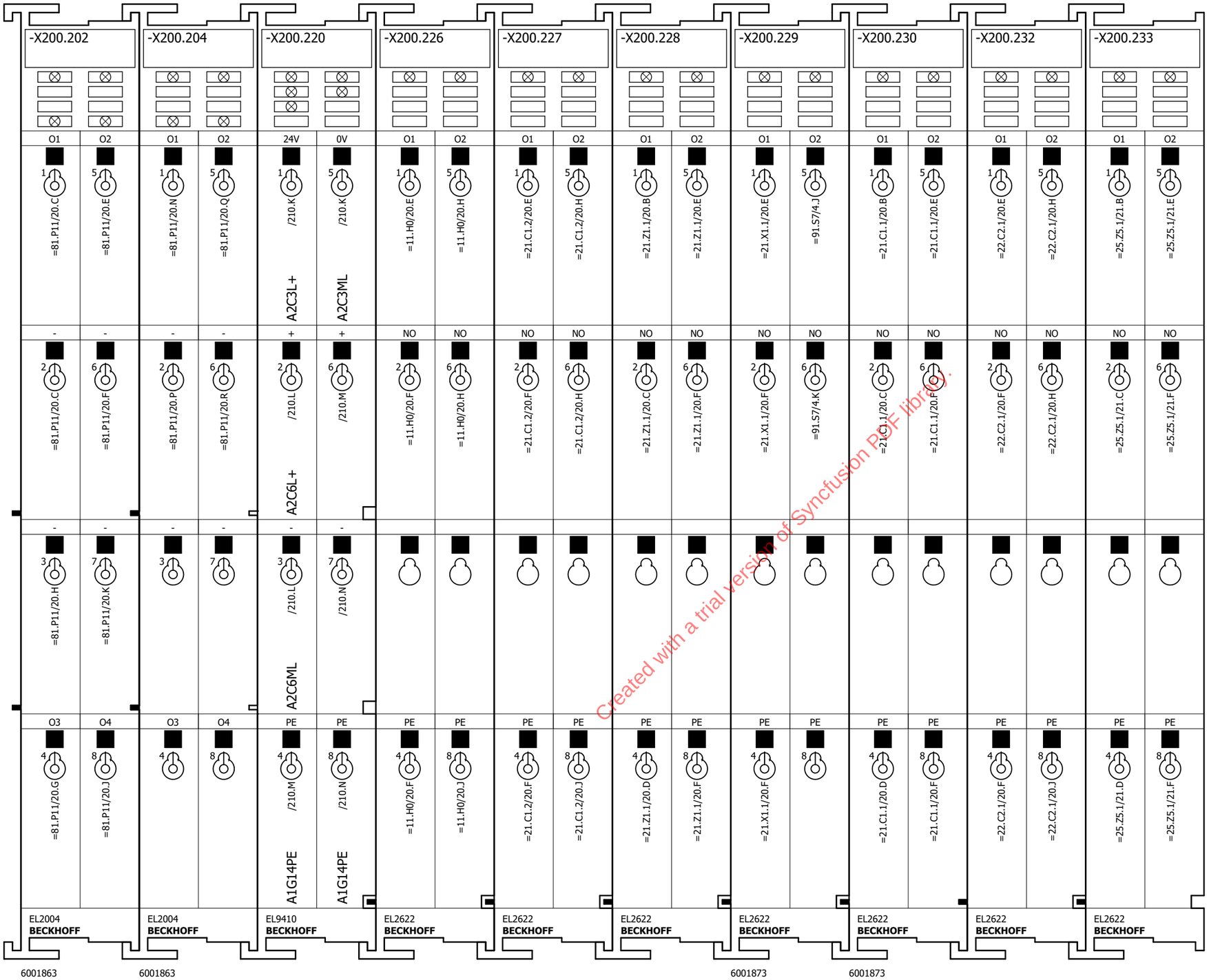
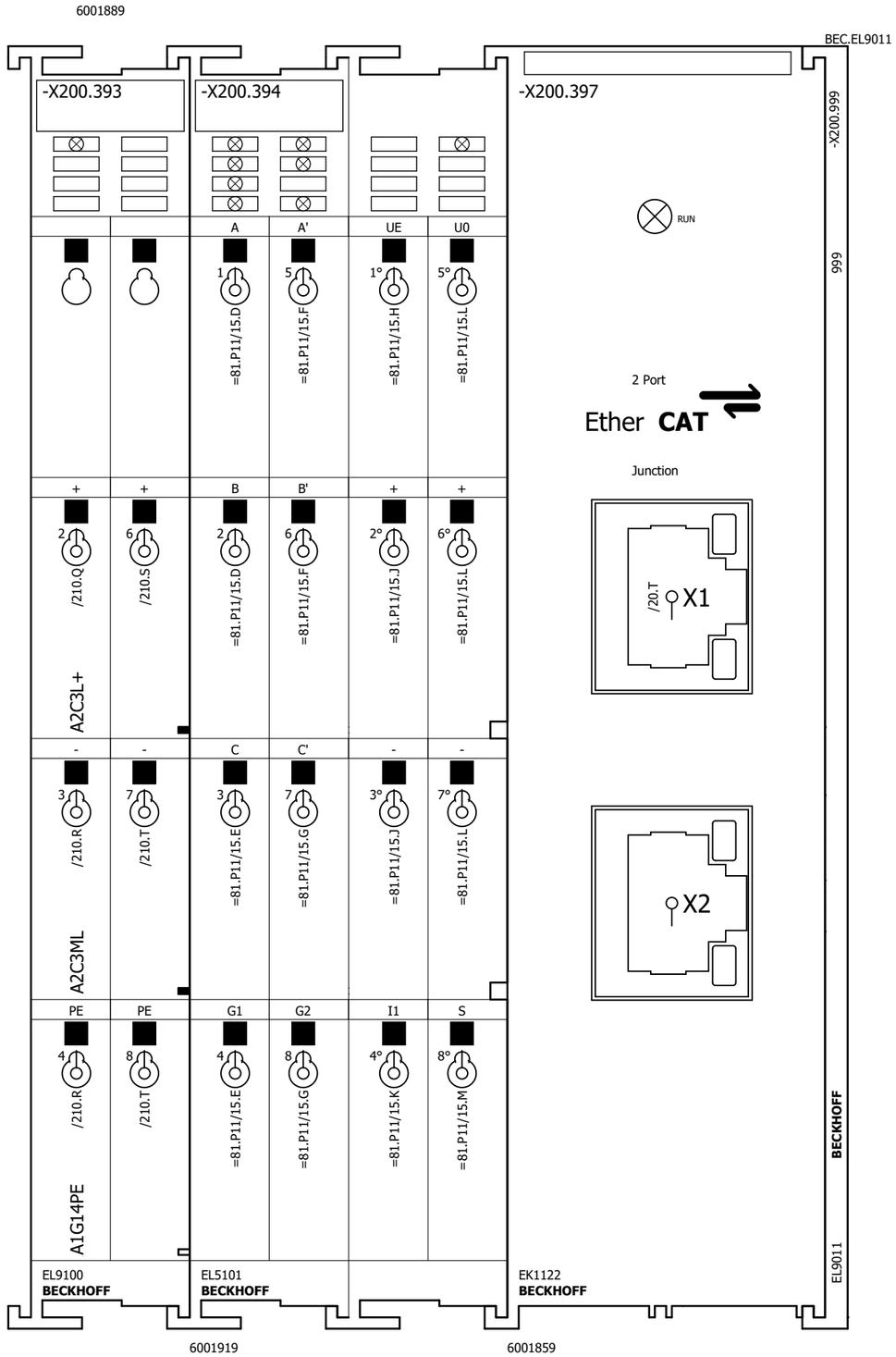


Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	assembly bus coupler control cabinet +E1		= 71.M1 + E13	function page 201/710
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 166
change	date	name	norm		originally.	created for.	created by.				



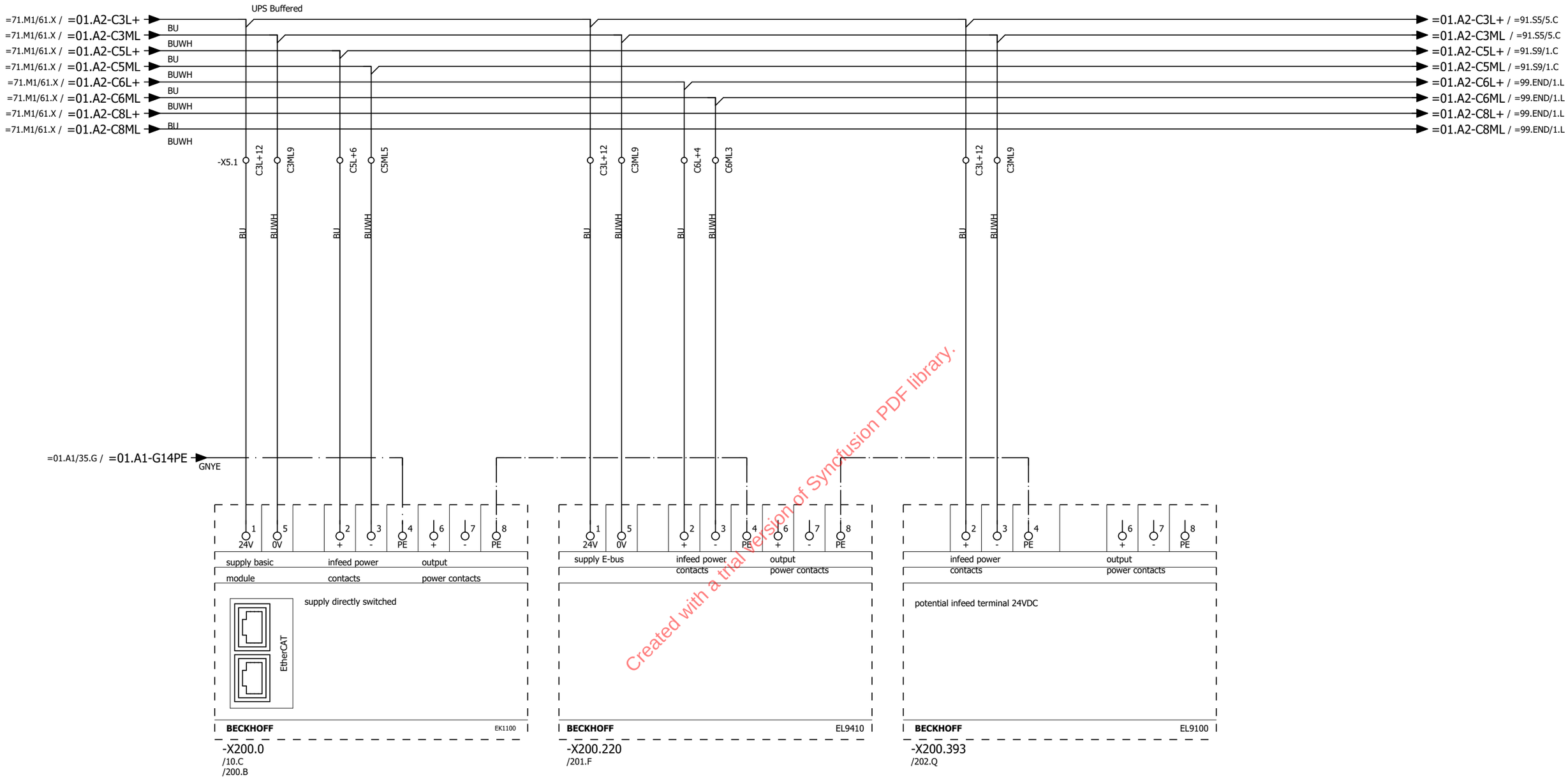
Created with a trial version of Syncfusion PDF library.

201 210

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	assembly bus coupler control cabinet +E1		= 71.M1
			design.	PED						+ E13
			check.						98290 WS450 KL x 5500 CNC Monolith	2953
change	date	name	norm		originally.	created for.	created by.			

function page 202/710

page 167



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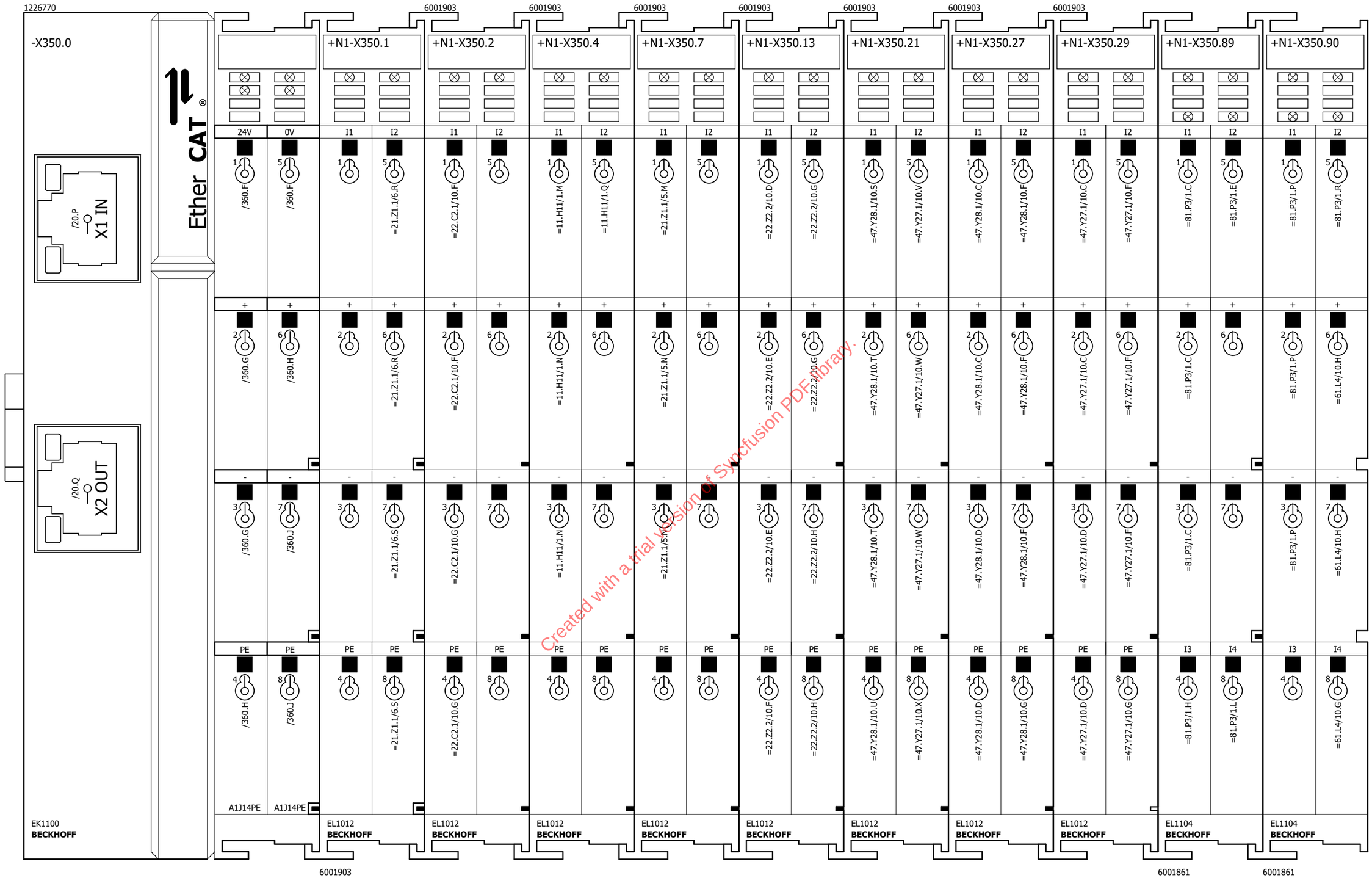
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	supply Beckhoff modules X200		= 71.M1 + E13	function page 210/710
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 168
change	date	name	norm		originally.	created for.	created by.				



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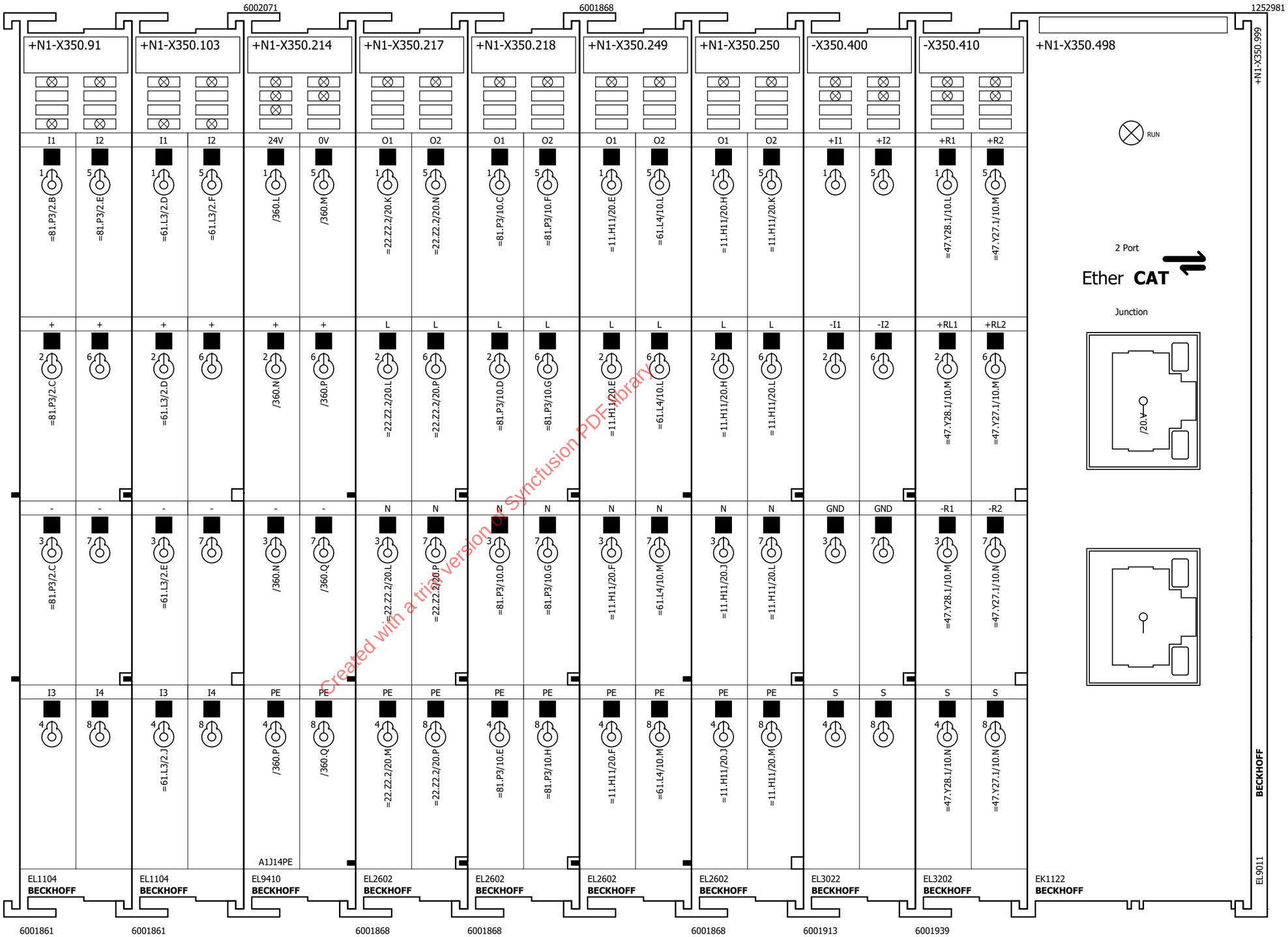
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	assembly bus coupler headstock +N1		= 71.M1 + N1	function page 350/710
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 169
change	date	name	norm		originally.	created for.	created by.				



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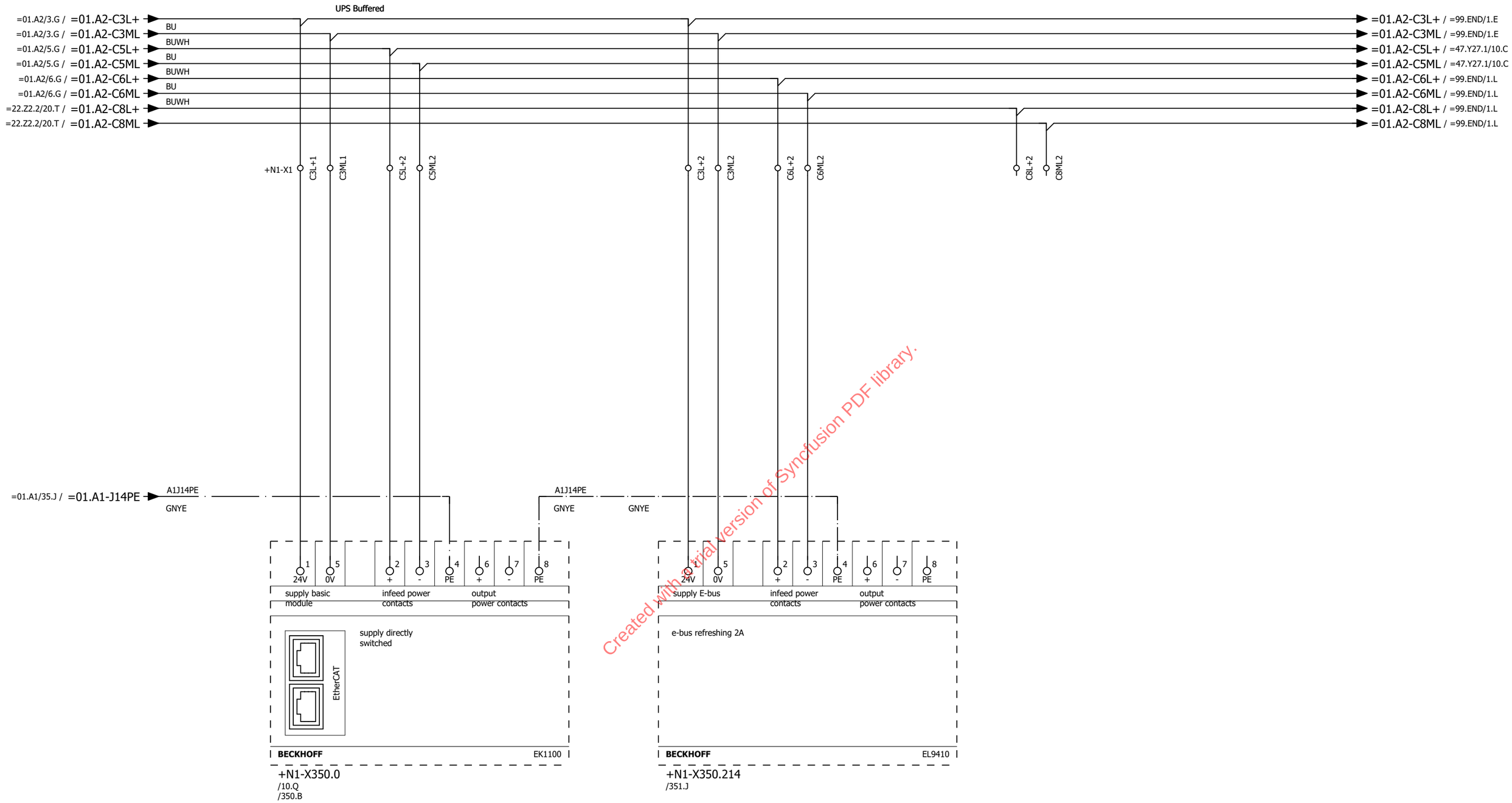
350 360

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	assembly bus coupler headstock +N1		= 71.M1 + N1	function page 351/710
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 170
change	date	name	norm		originally.	created for.	created by.				



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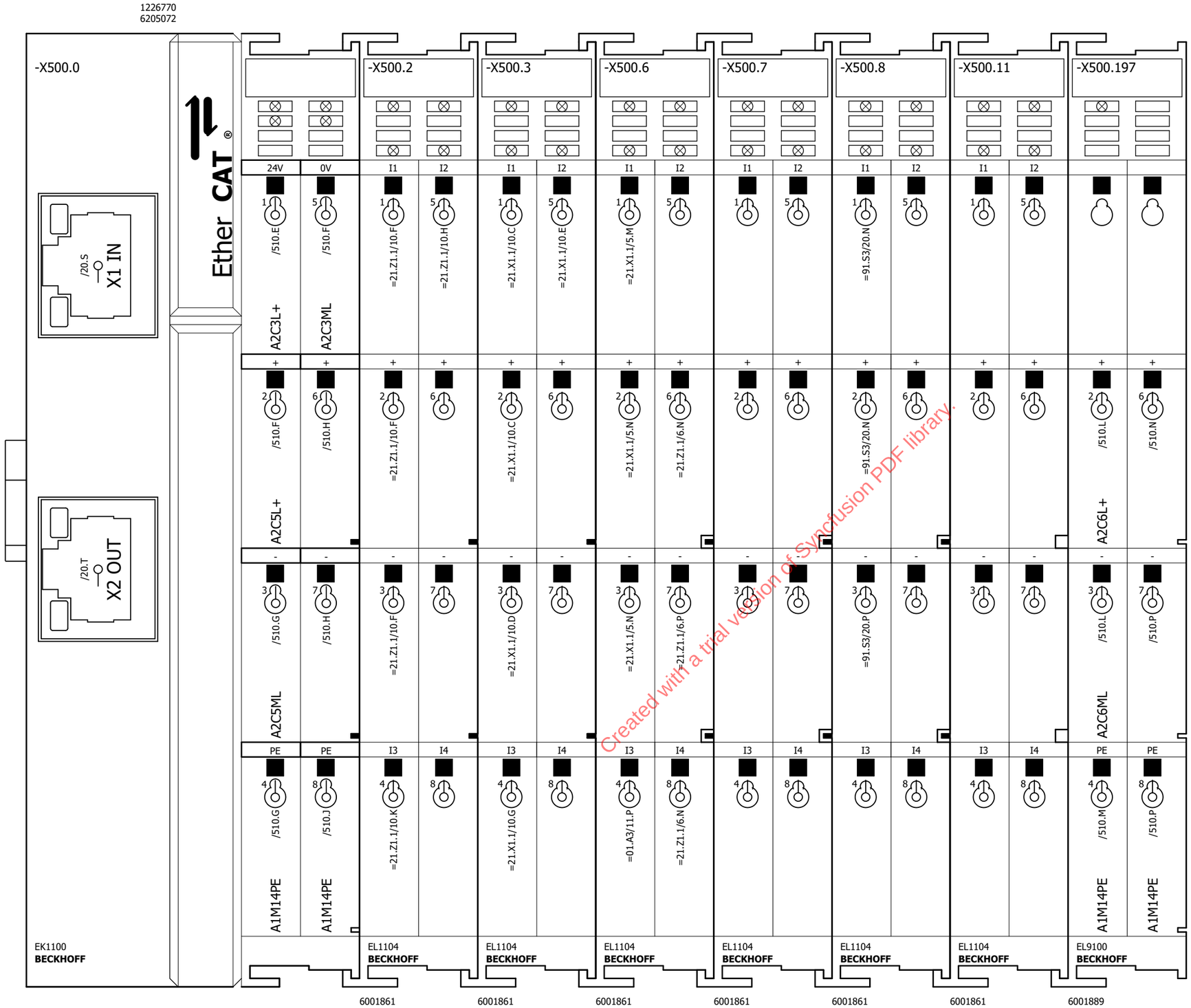
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	supply Beckhoff modules X350		= 71.M1	function page
			design.	PED						+ S1	360/710
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				171



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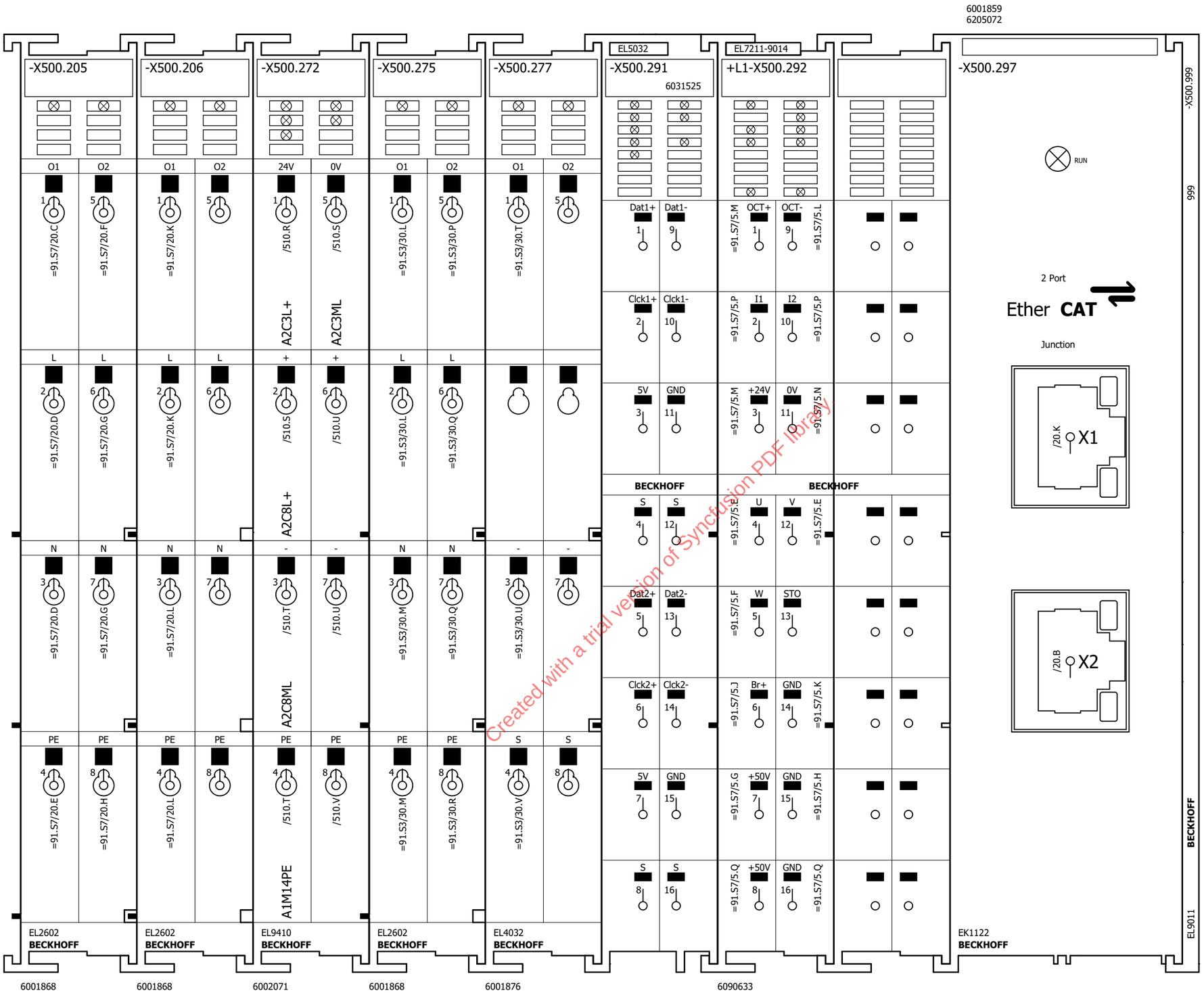
360 501

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	assembly bus coupler carriage terminal box +L1		= 71.M1 + L1	function page 500/710
			design.	PED						
			check.					98290 WS450 KL x 5500 CNC Monolith	2953	page 172
change	date	name	norm		originally.	created for.	created by.			



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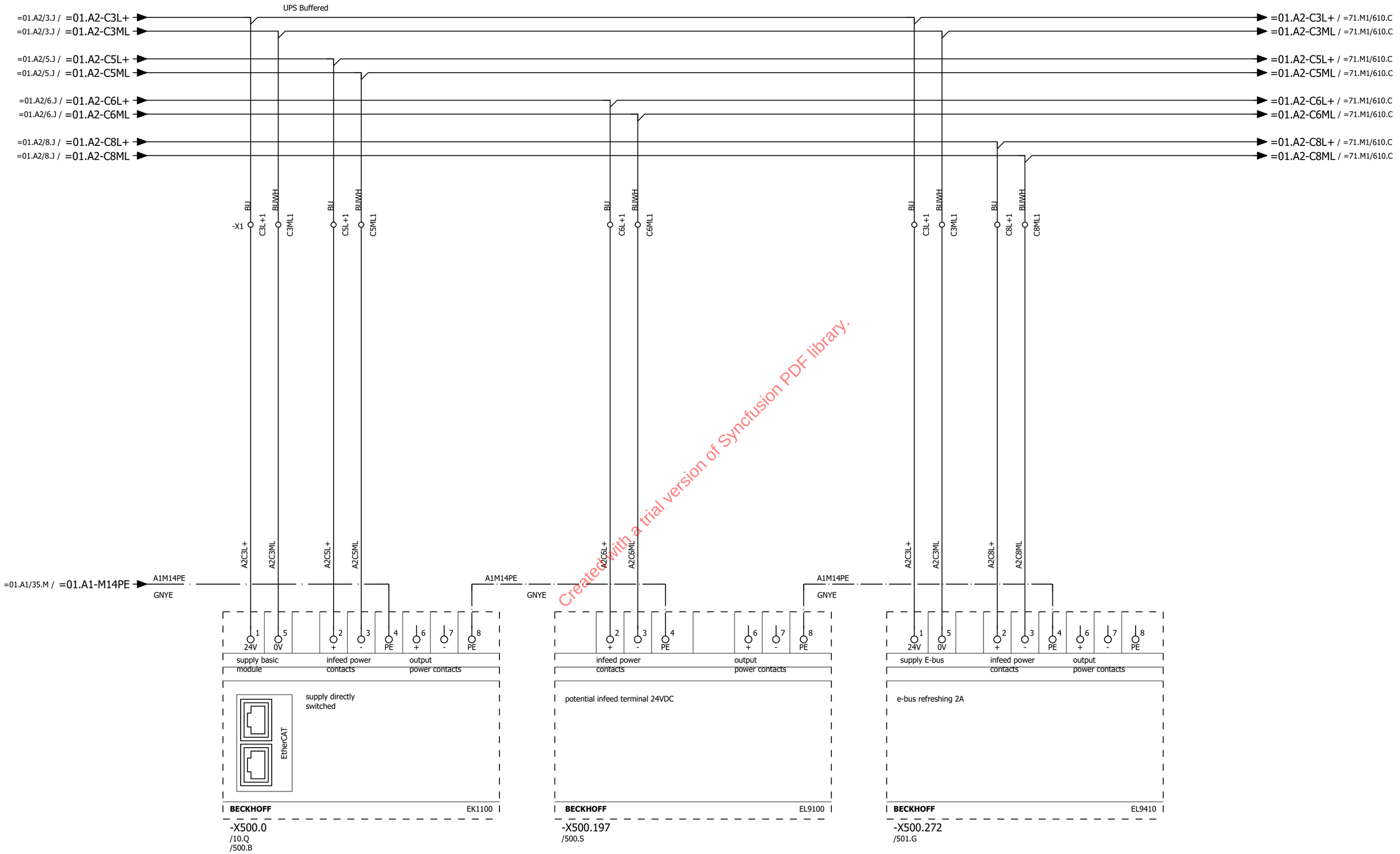
500 510

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	assembly bus coupler carriage terminal box +L1		= 71.M1 + L1	function page 501/710
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 173
change	date	name	norm		originally.	created for.	created by.				



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			design.	PED							
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change	date	name	norm		originally.	created for.	created by.				

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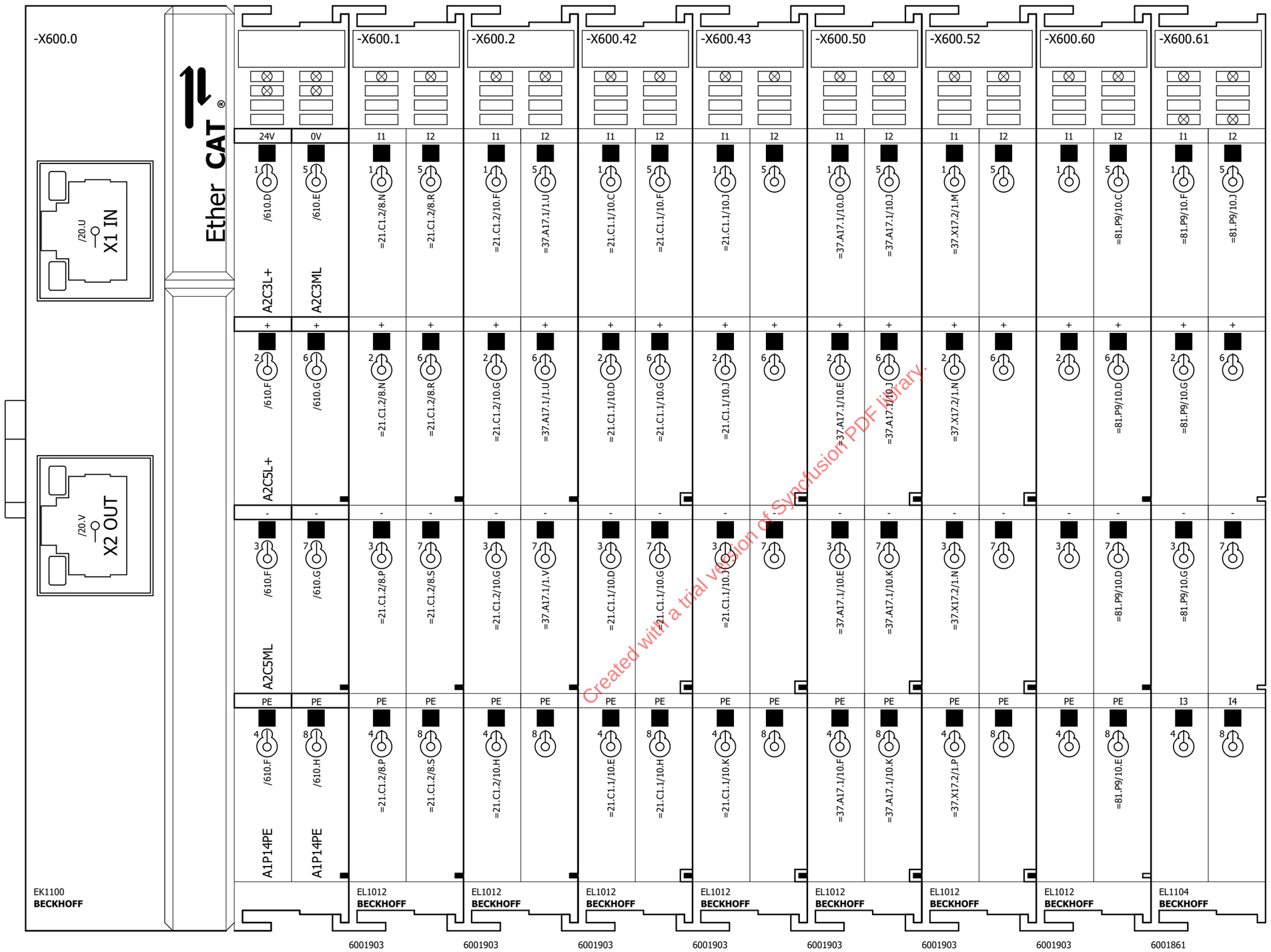
6205072



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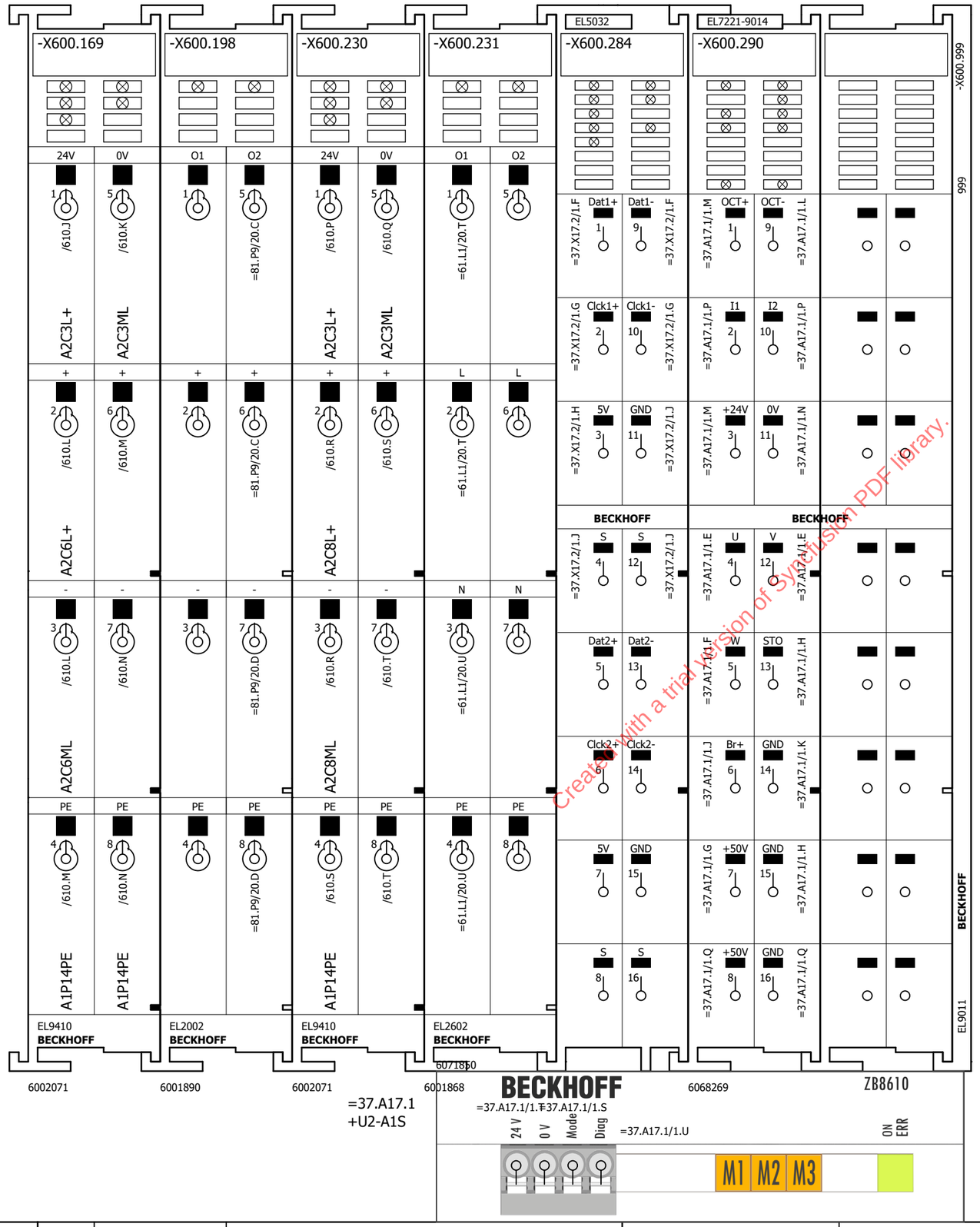
510 601

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	assembly bus coupler saddle +U2		= 71.M1	function page
			design.	PED					+ U2	600/710
			check.					98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.			175



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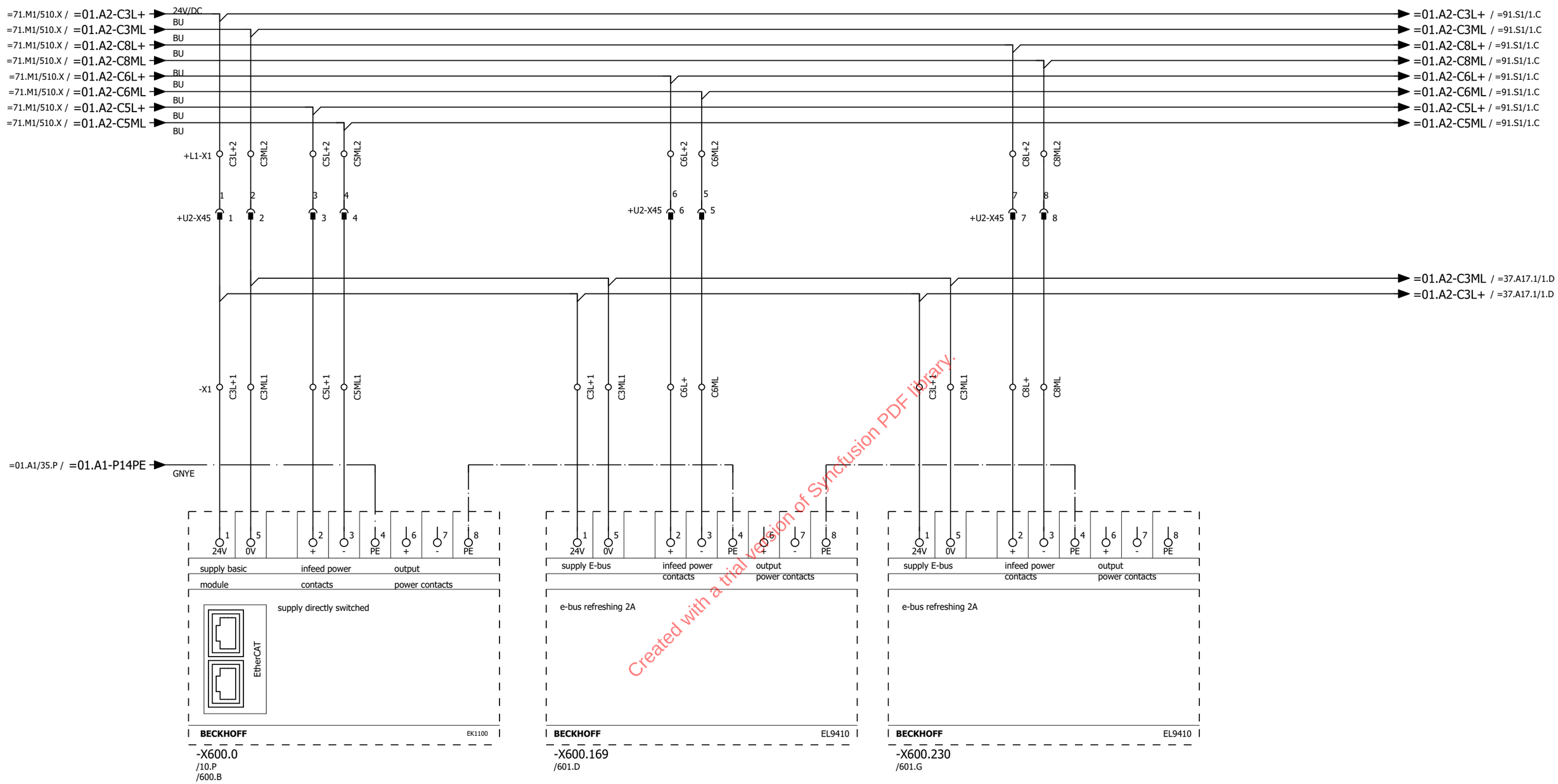
600

610

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	assembly bus coupler saddle +U2		= 71.M1 + U2	function page 601/710
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 176
change	date	name	norm		originally.	created for.	created by.				



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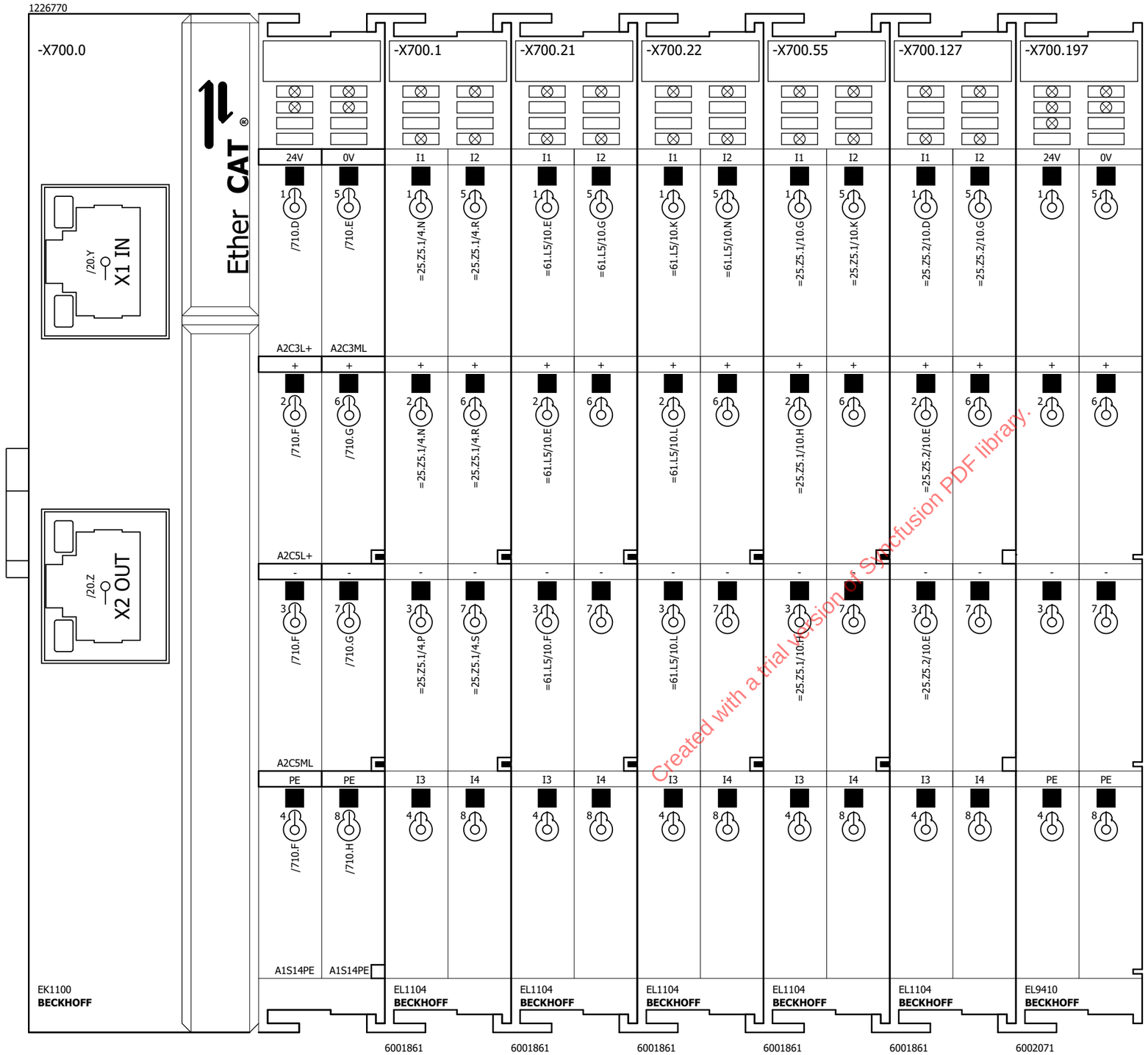
change	date	name	norm		originally.	created for.	created by.				



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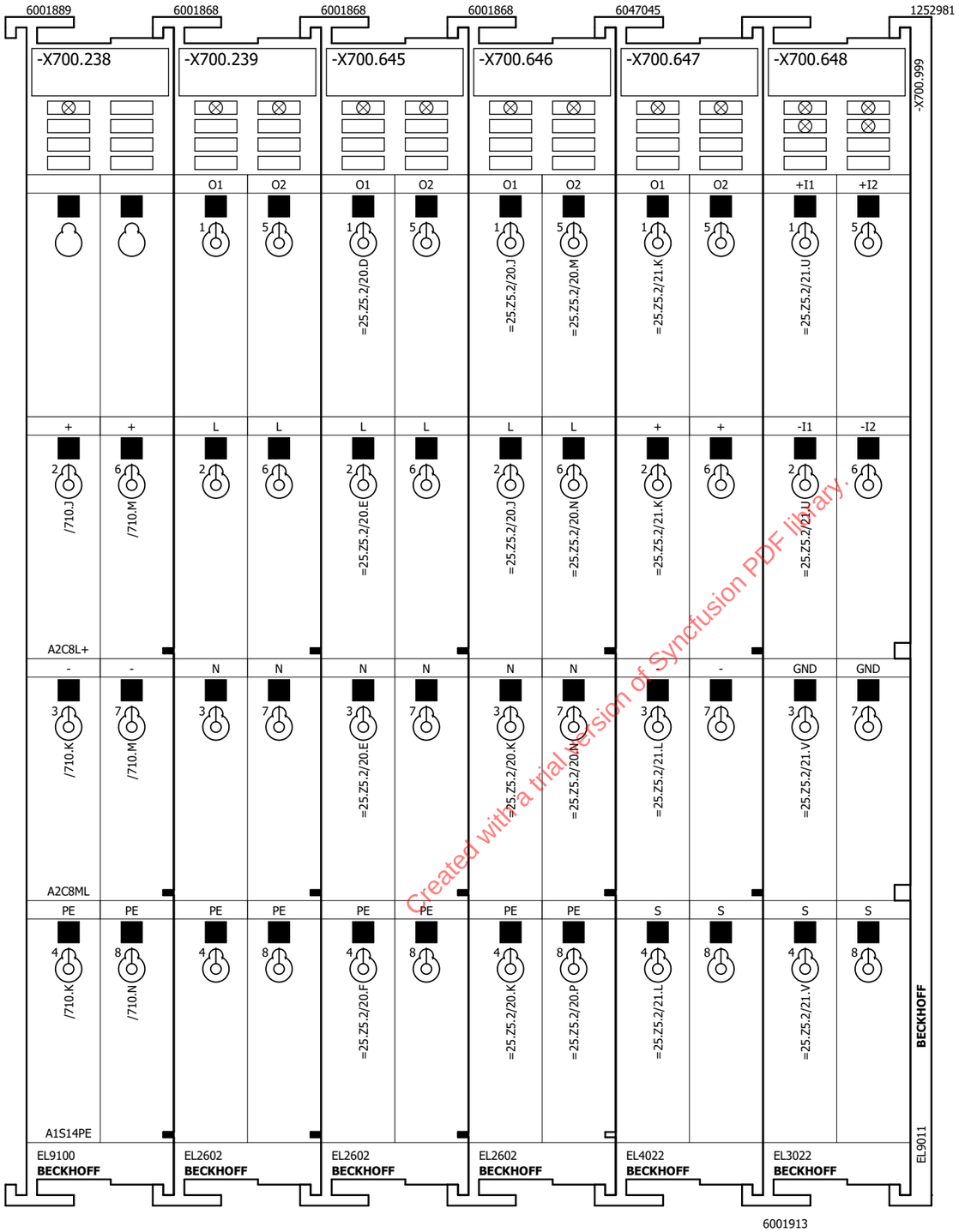
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 178
change	date	name	norm		originally.	created for.	created by.				



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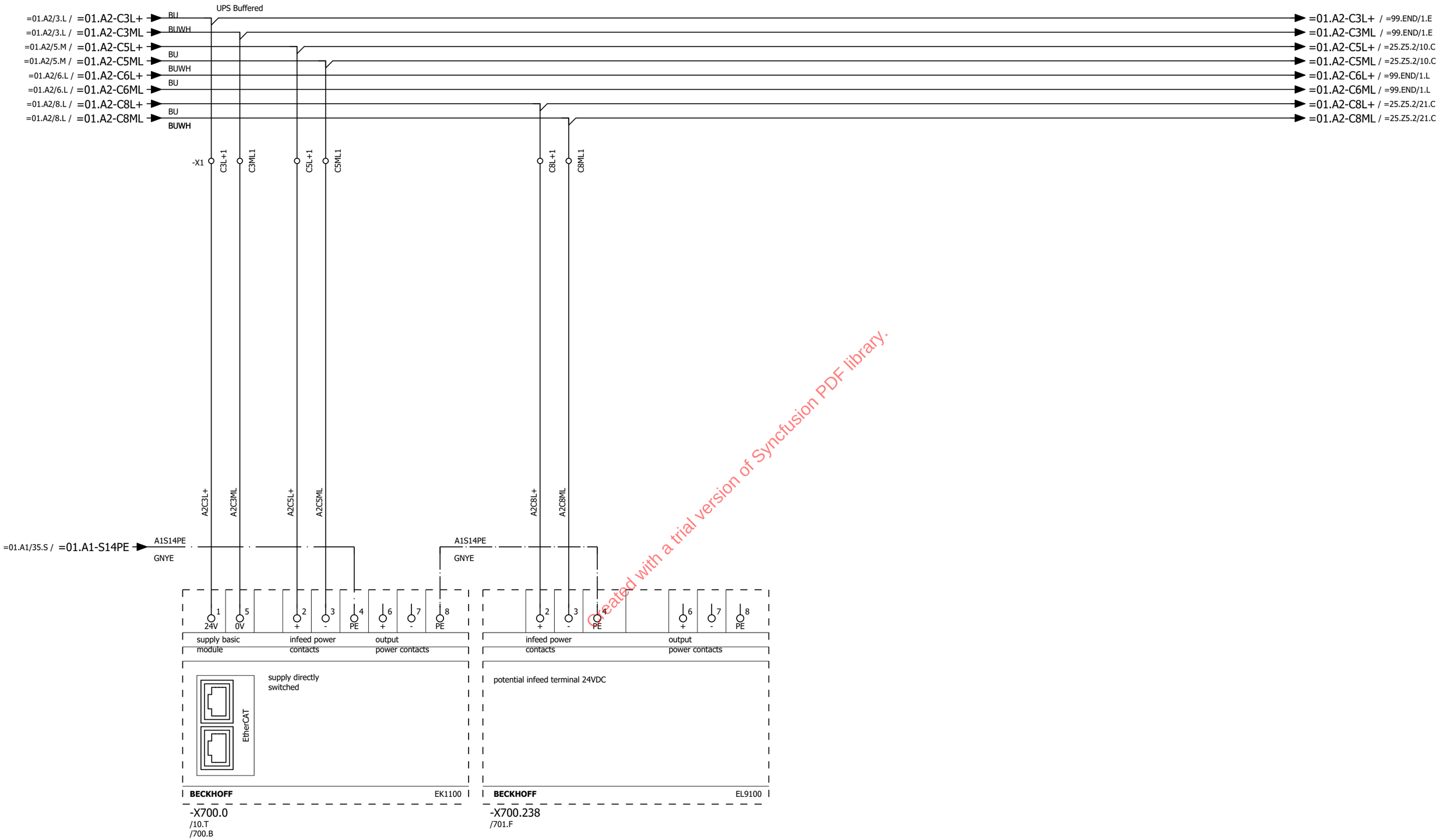
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	assembly bus coupler tailstock +T2		= 71.M1 + T2	function page 701/710
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 179
change	date	name	norm		originally.	created for.	created by.				



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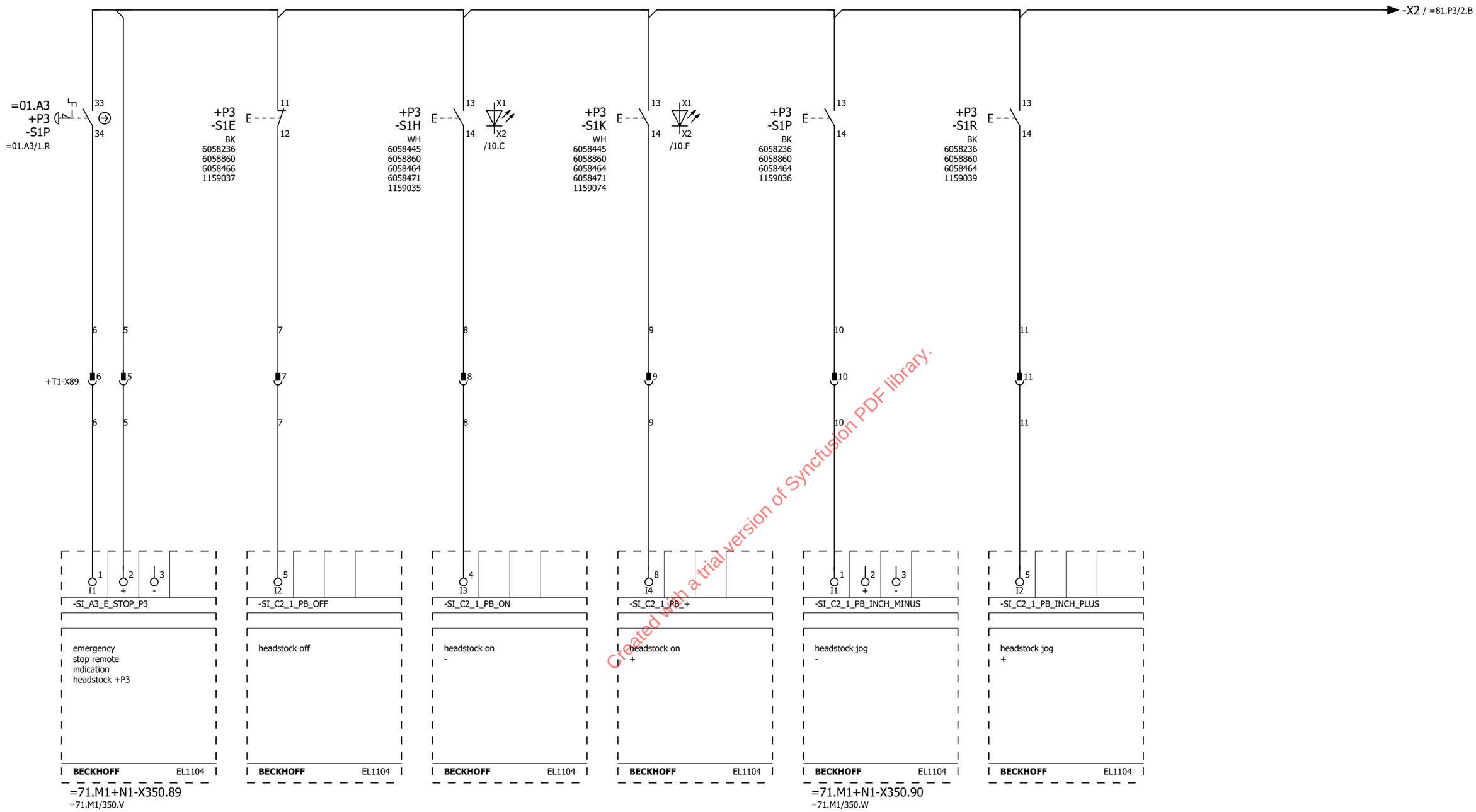
change	date	name	norm		originally.	created for.	created by.				



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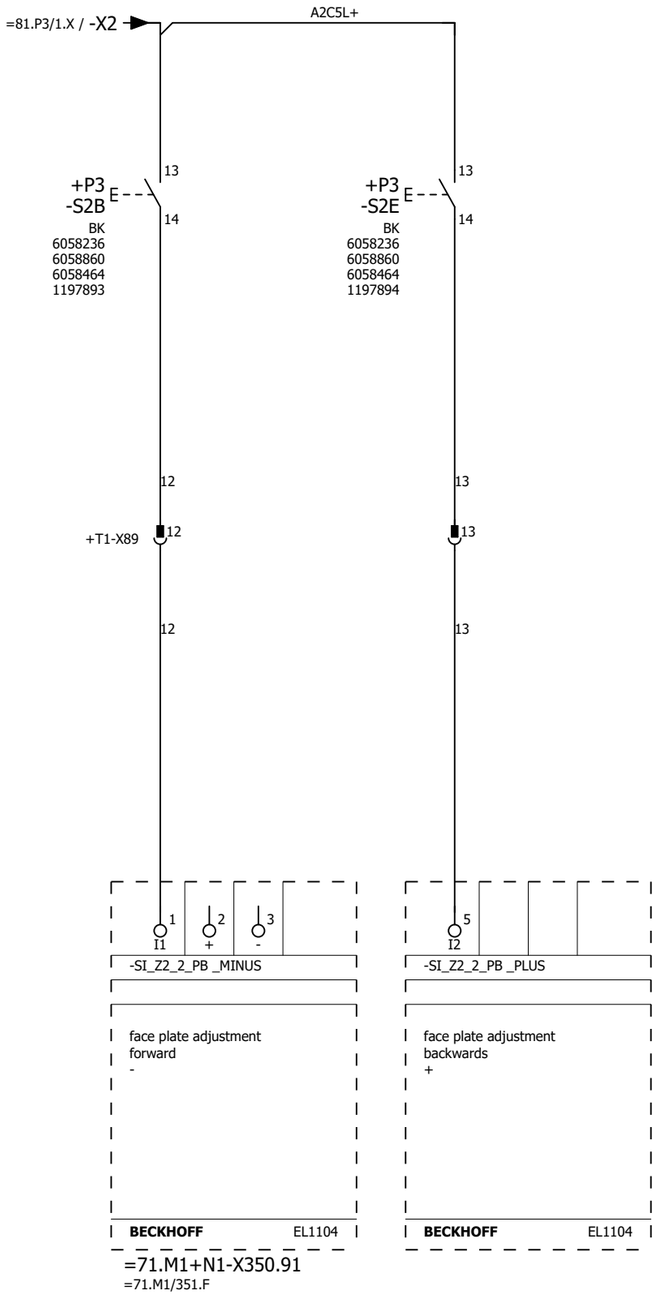

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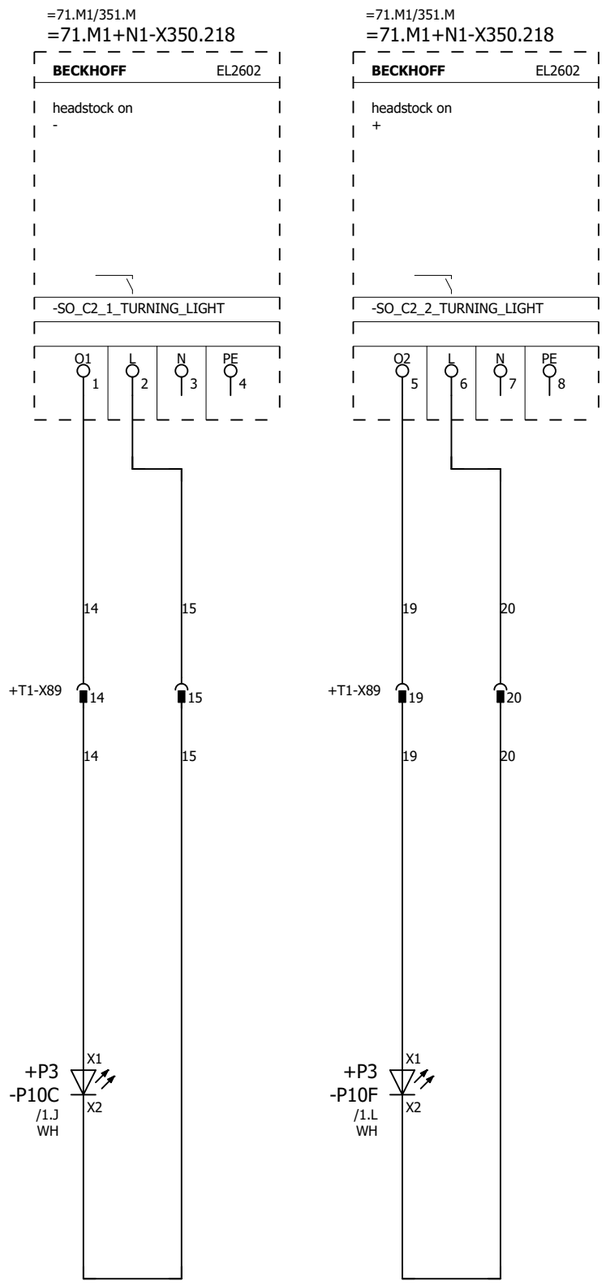
			design.	PED						+ T1	2/10
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				182

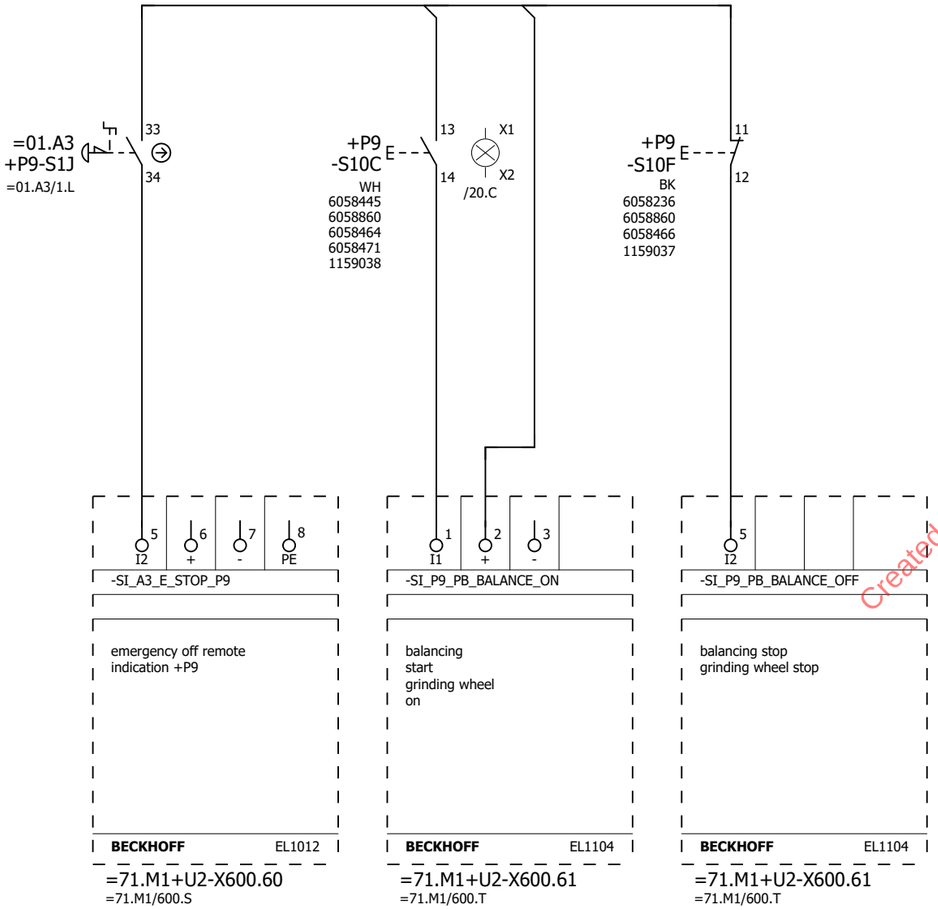


Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	control panel headstock		= 81.P3
			design.	PED						+ T1
			check.						98290 WS450 KL x 5500 CNC Monolith	2953
change	date	name	norm		originally.	created for.	created by.			

function page 10/10

page 183



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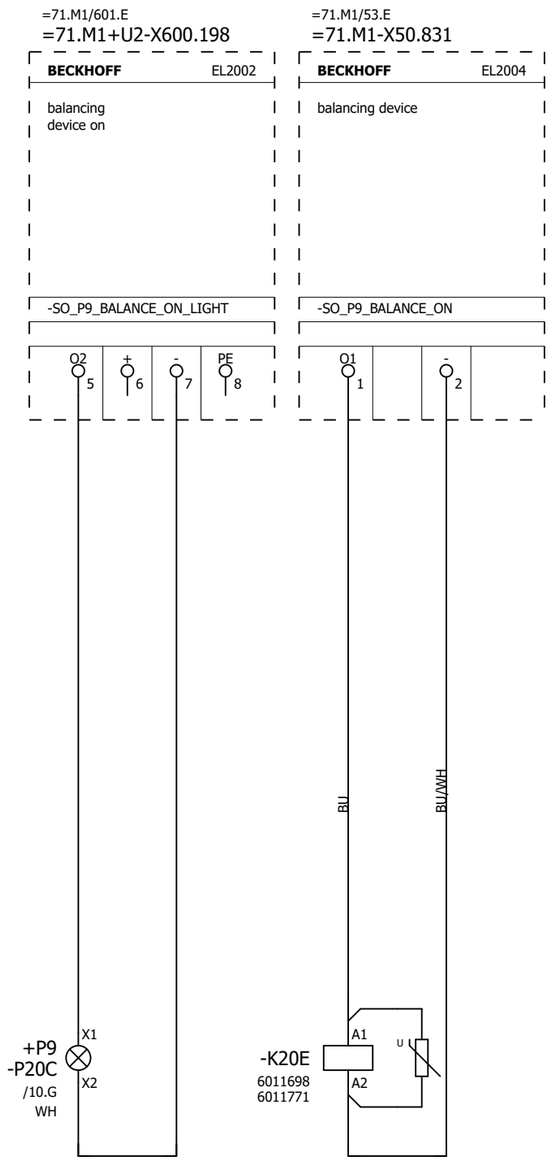
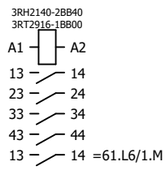
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	balancing unit I/O		= 81.P9 + E11	function page 10/20
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 184
change	date	name	norm		originally.	created for.	created by.				



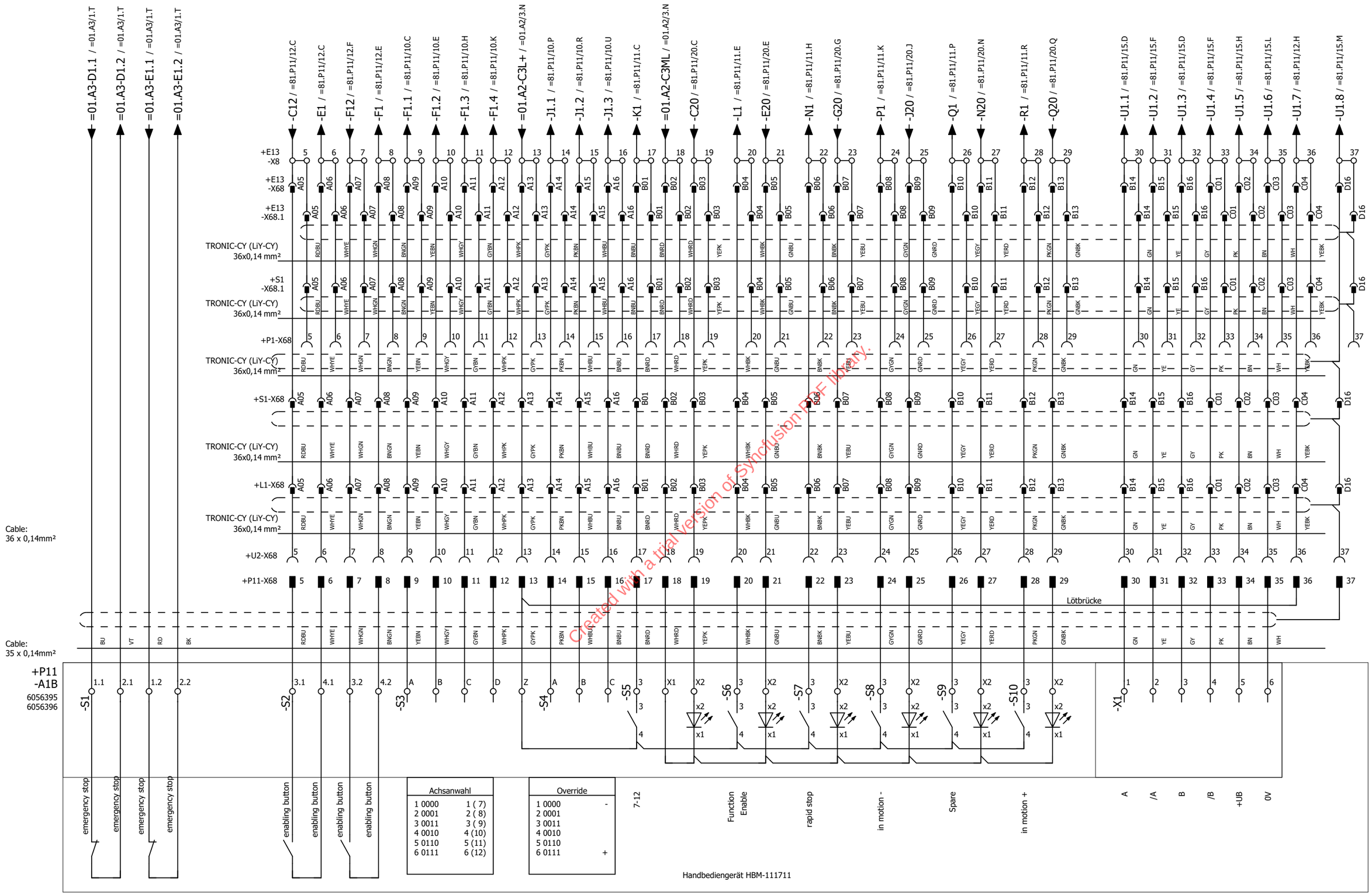


Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	balancing unit I/O		= 81.P9
			design.	PED						+ E11
			check.						98290 WS450 KL x 5500 CNC Monolith	2953
change	date	name	norm		originally.	created for.	created by.			

function page 20/20

page 185



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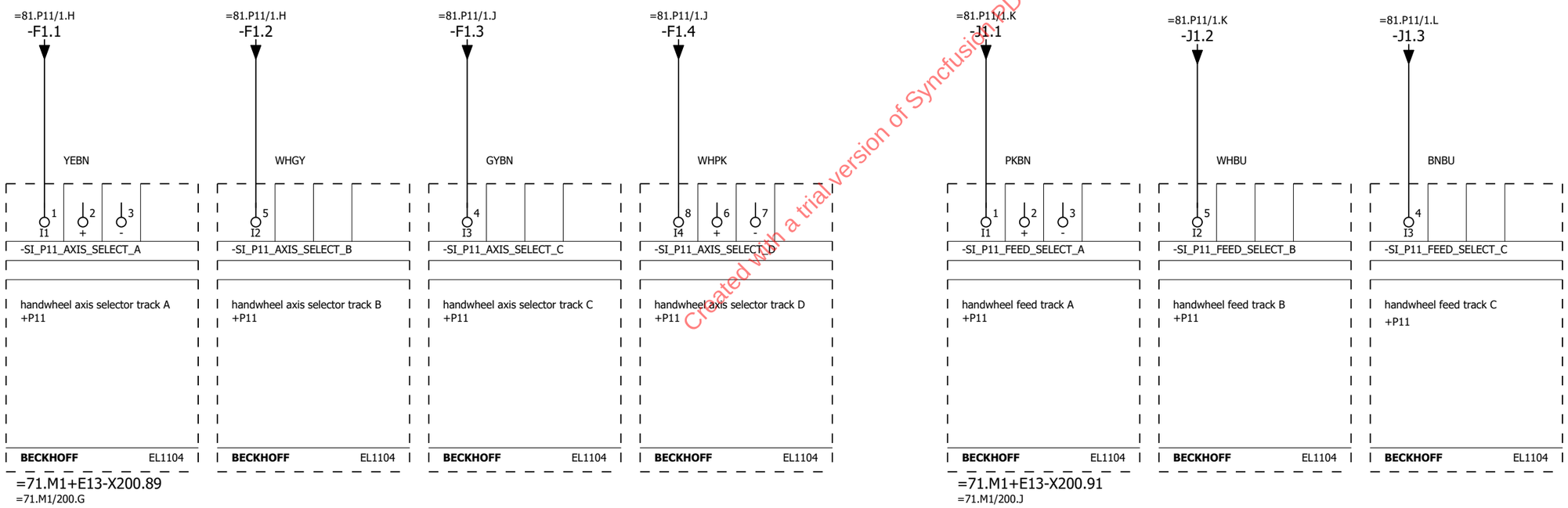
=.P9/20

10

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	handwheel		= 81.P11 + L1	function page 1/20
			design.	PED						
			check.					98290 WS450 KL x 5500 CNC Monolith	2953	page 186
change	date	name	norm		originally.	created for.	created by.			



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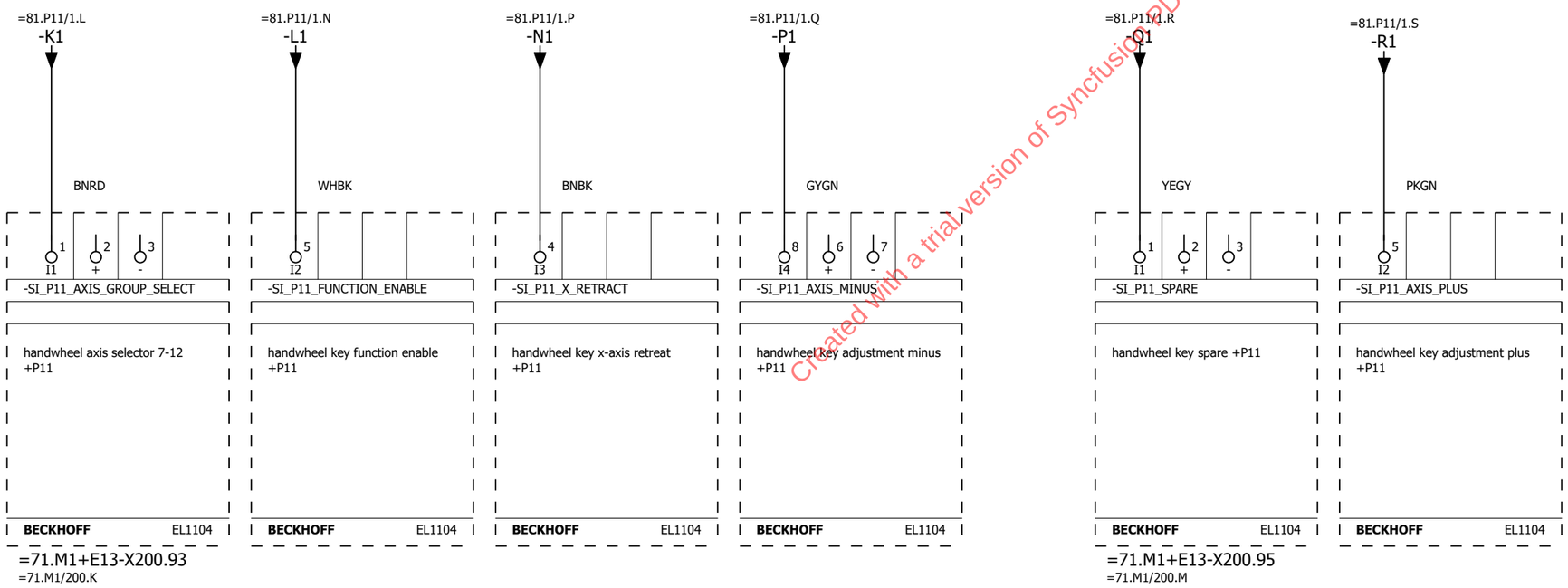
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 187
change	date	name	norm		originally.	created for.	created by.				



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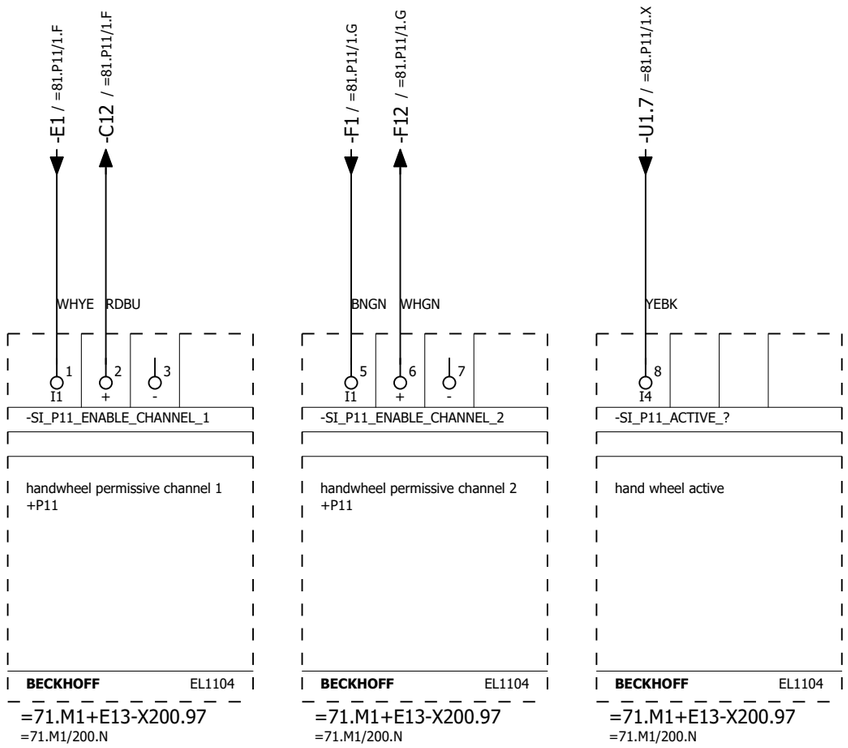
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	hand wheel I/O		= 81.P11 + L1	function page 11/20
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 188
change	date	name	norm		originally.	created for.	created by.				

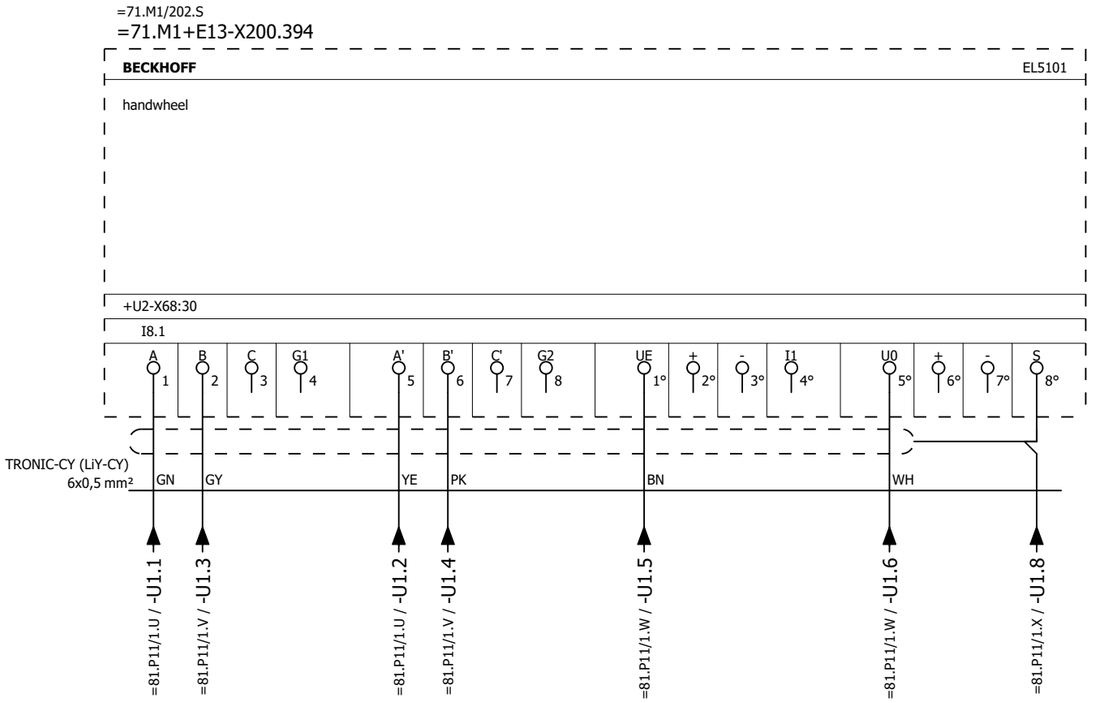


Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	hand wheel I/O		= 81.P11
			design.	PED						+ L1
			check.						98290 WS450 KL x 5500 CNC Monolith	2953
change	date	name	norm		originally.	created for.	created by.			

function page 12/20

page 189



Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	hand wheel I/O		= 81.P11
			design.	PED						+ L1
			check.						98290 WS450 KL x 5500 CNC Monolith	2953
change	date	name	norm		originally.	created for.	created by.			

function page 15/20

page 190

=71.M1/201.B
=71.M1+E13-X200.202

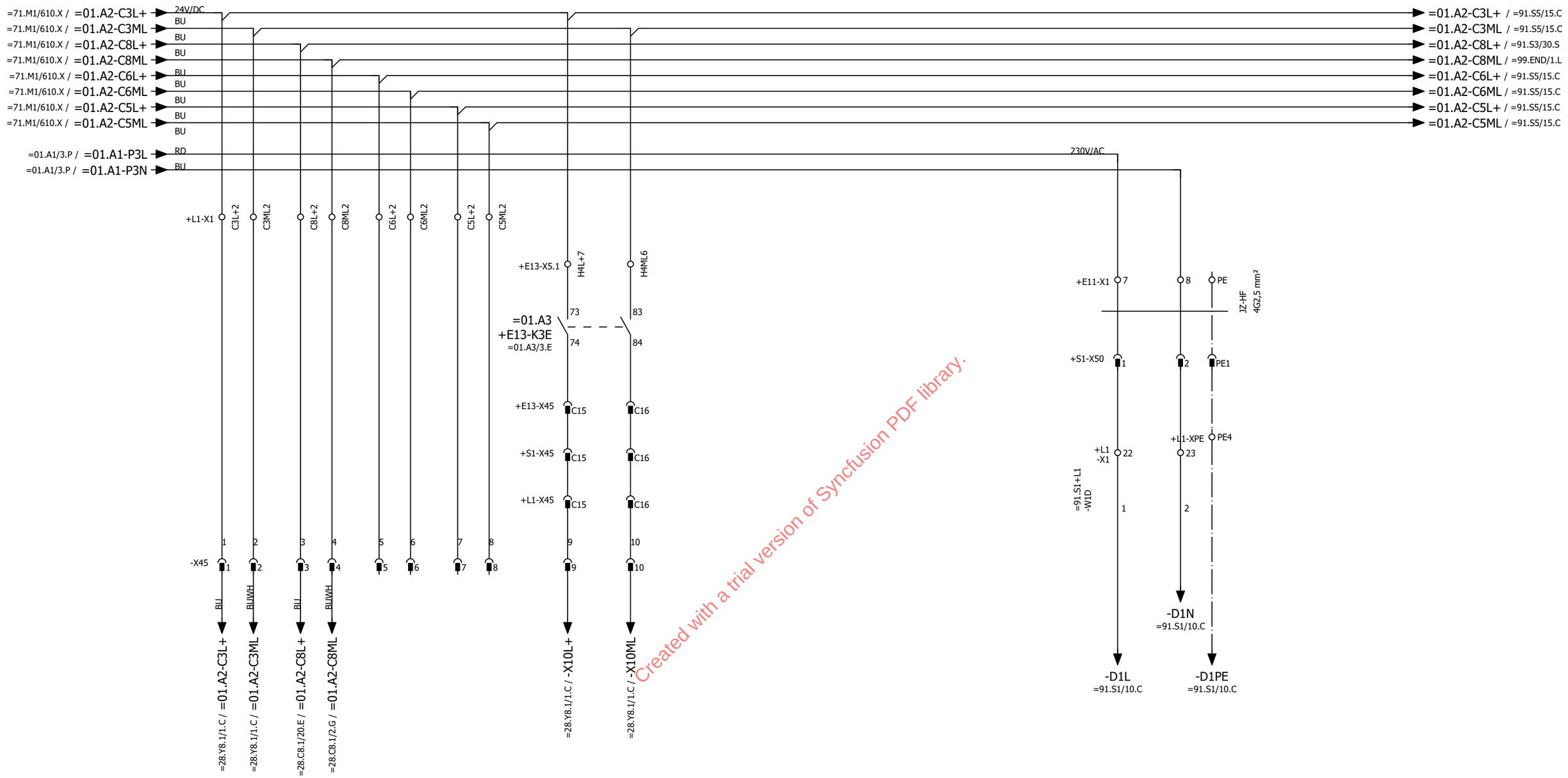
BECKHOFF EL2004	BECKHOFF EL2004	BECKHOFF EL2004	BECKHOFF EL2004
handwheel LED axis selector 7-12 +P11	handwheel LED function enable +P11	handwheel LED emergency retreat X-axis +P11	handwheel LED motion -
-SO_P11_AXIS_GROUP_SELECT_LIGHT	-SO_P11_FUNCTION_ENABLE_LIGHT	-SO_P11_X_RETRACT_LIGHT	-SO_P11_AXIS_MINUS_LIGHT
O1 1 - 2	O2 5 - 6	O3 4 - 3	O4 8 - 7
YEPK	GNBU	YEBU	GNRD
=81.P11/1.M / -C20	=81.P11/1.N / -E20	=81.P11/1.P / -G20	=81.P11/1.R / -J20

=71.M1/201.D
=71.M1+E13-X200.204

BECKHOFF EL2004	BECKHOFF EL2004
Handwheel LED spare +P11	handwheel LED motion +
-SO_P11_SPARE_LIGHT	-SO_P11_AXIS_PLUS_LIGHT
O1 1 - 2	O2 5 - 6
YERD	GNBK
=81.P11/1.S / -N20	=81.P11/1.T / -Q20

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	hand wheel I/O		= 81.P11	function page
			design.	PED					+ L1	20/20
			check.					98290 WS450 KL x 5500 CNC Monolith	2953	page 191
change	date	name	norm		originally.	created for.	created by.			

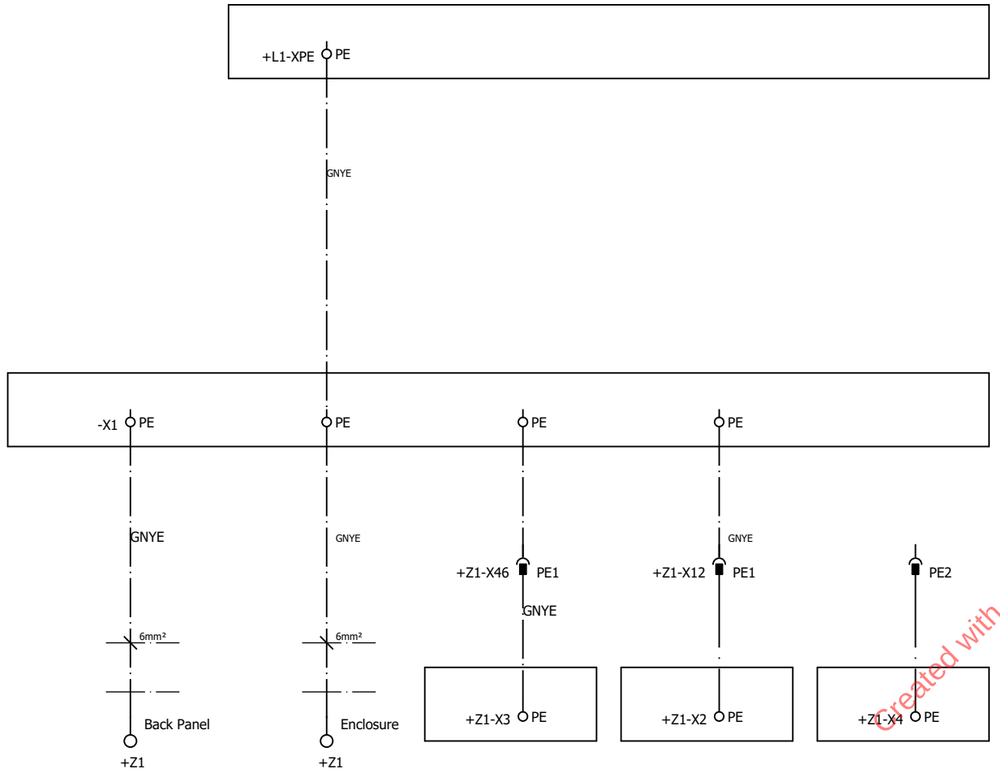


Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	infeed measuring gauge		= 91.S1
			design.	PED						+ Z1
			check.						98290 WS450 KL x 5500 CNC Monolith	2953
change	date	name	norm		originally.	created for.	created by.			

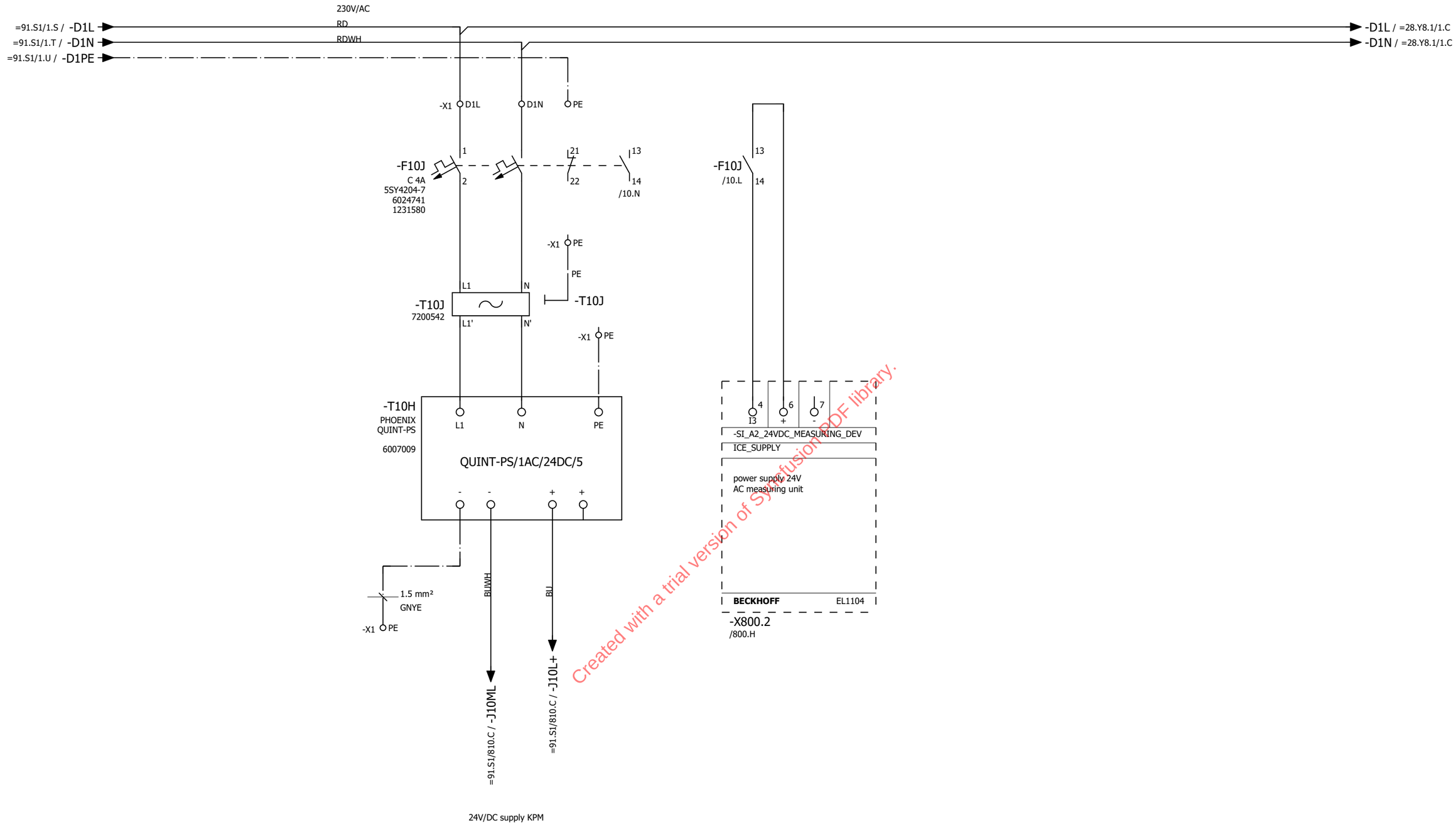
function page 1/810

page 192



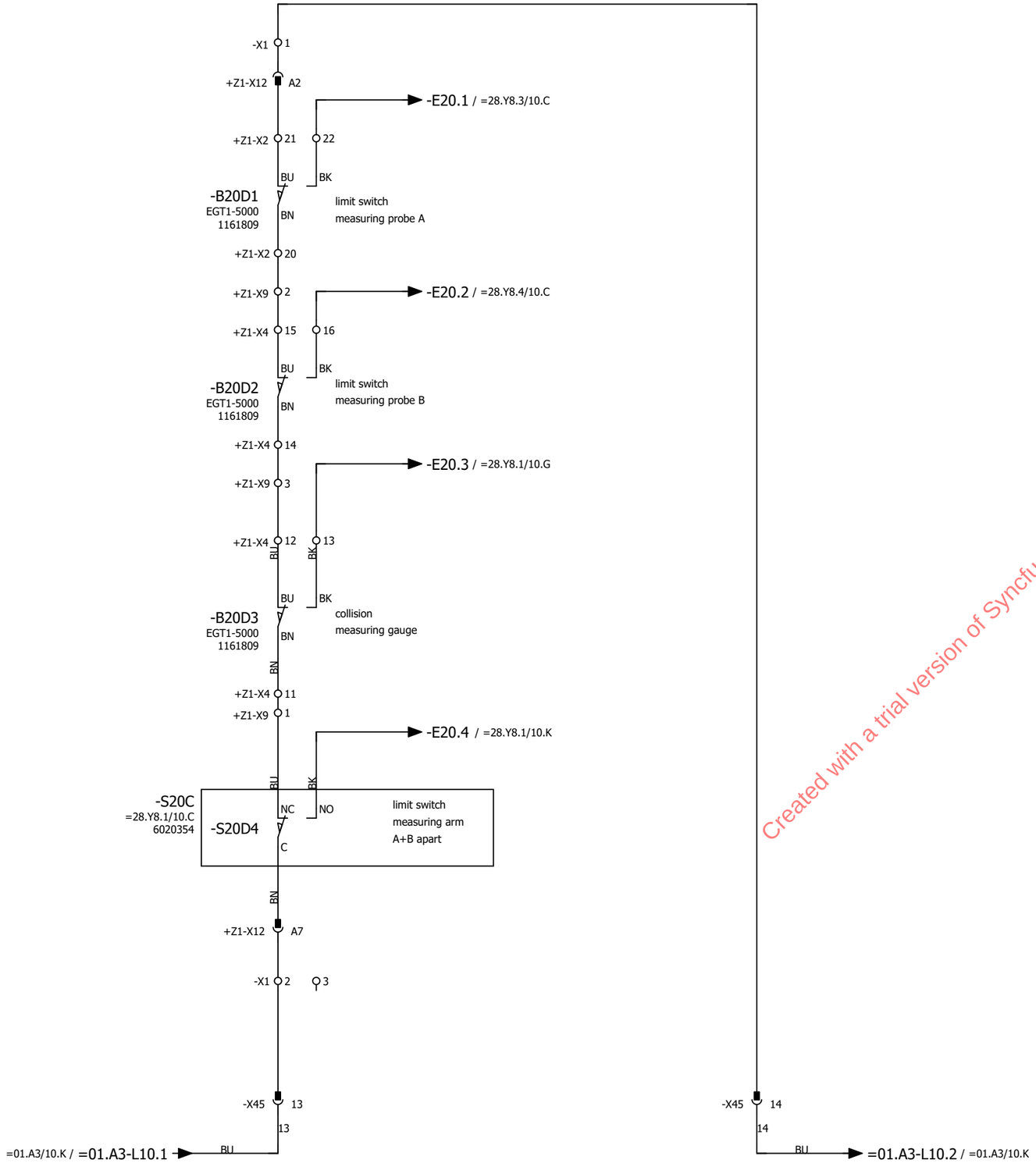
Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	earth ground measuring gauge		= 91.S1	function page
			design.	PED						+ Z1	3/810
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				193



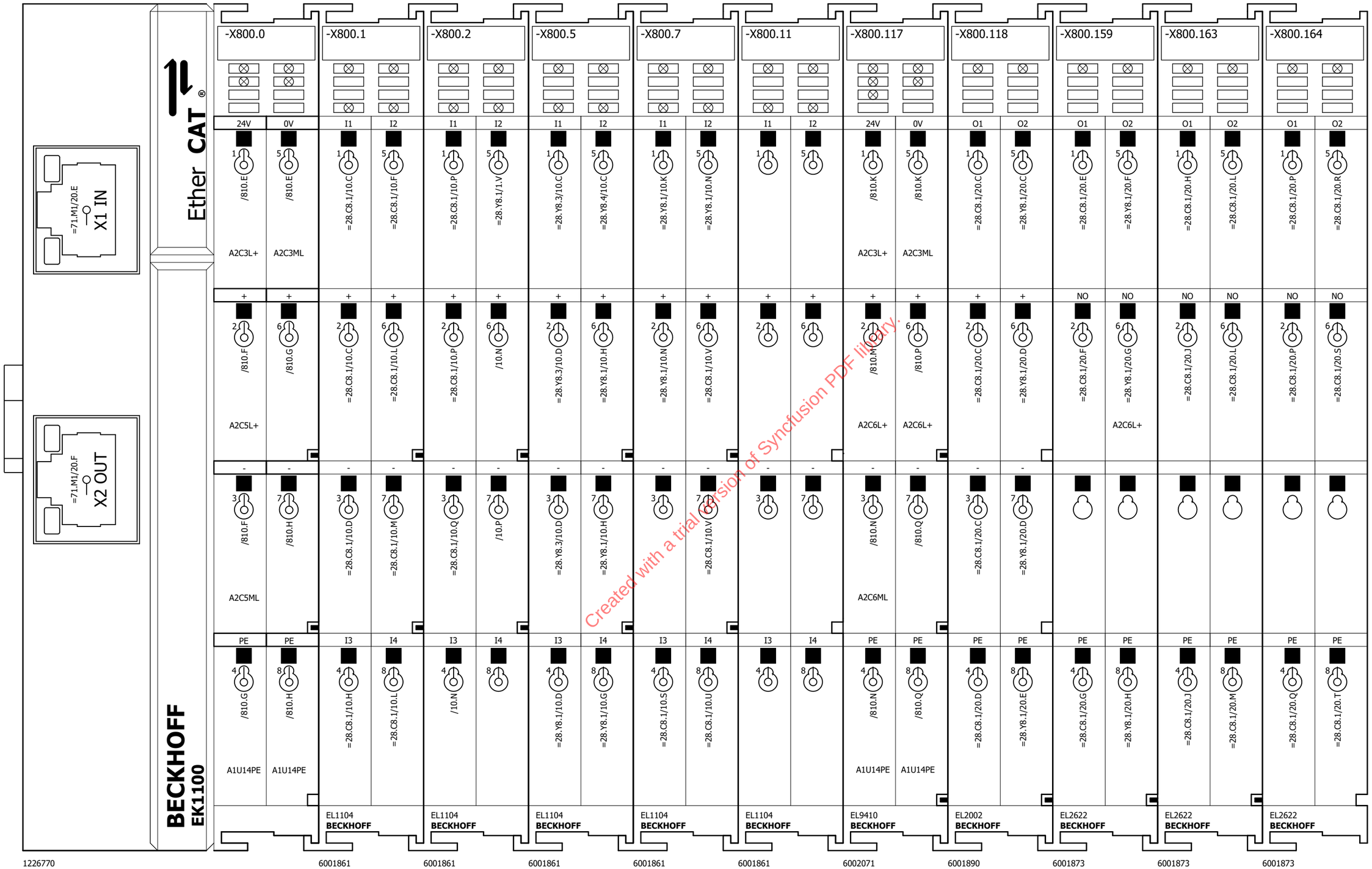
Created with a trial version of Syntfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	d.c. supply measuring gauge		= 91.S1	function page
			design.	PED						+ Z1	10/810
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				194



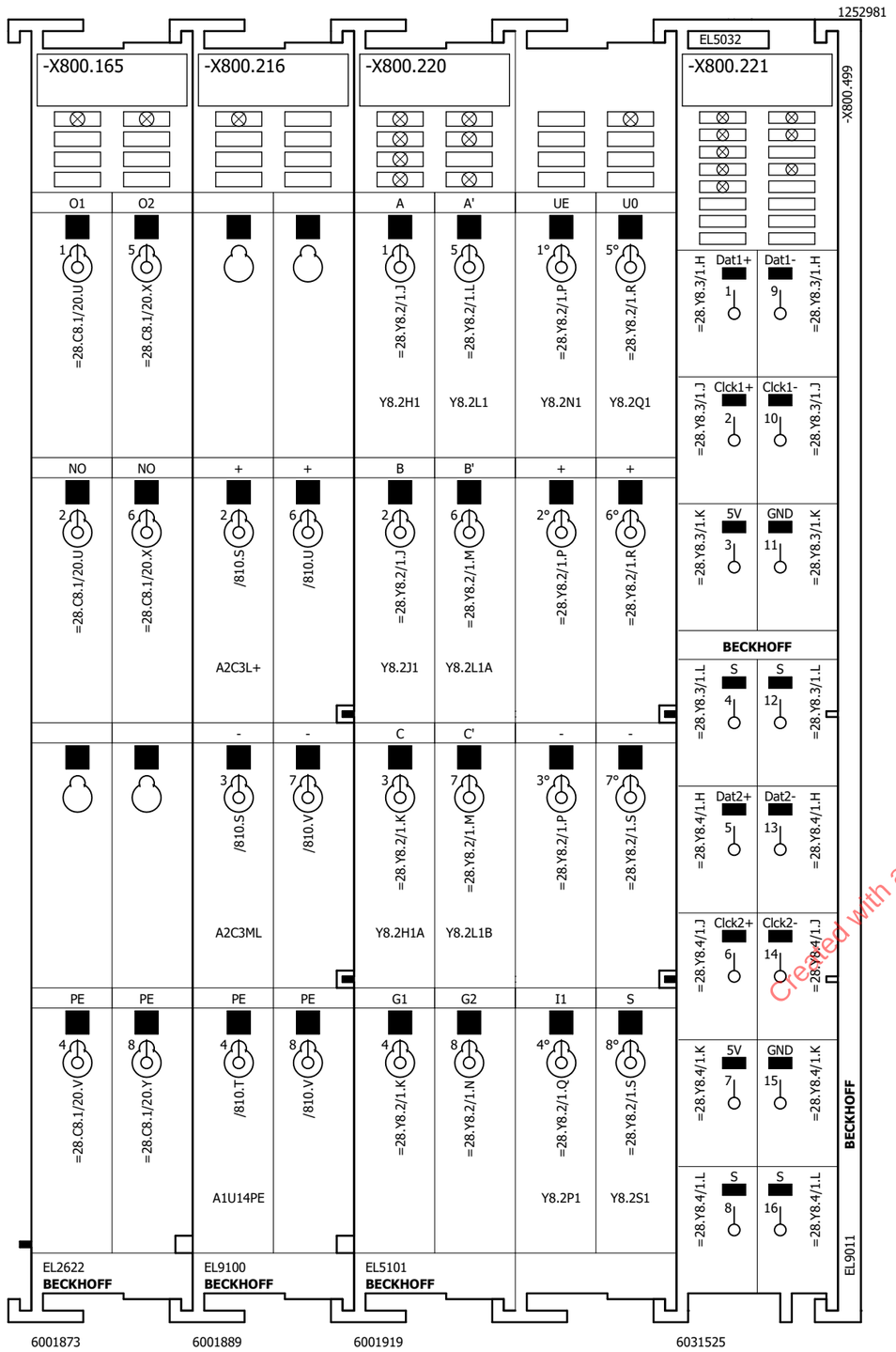
Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	emergency stop control		= 91.S1	function page
			design.	PED						+ Z1	20/810
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				195



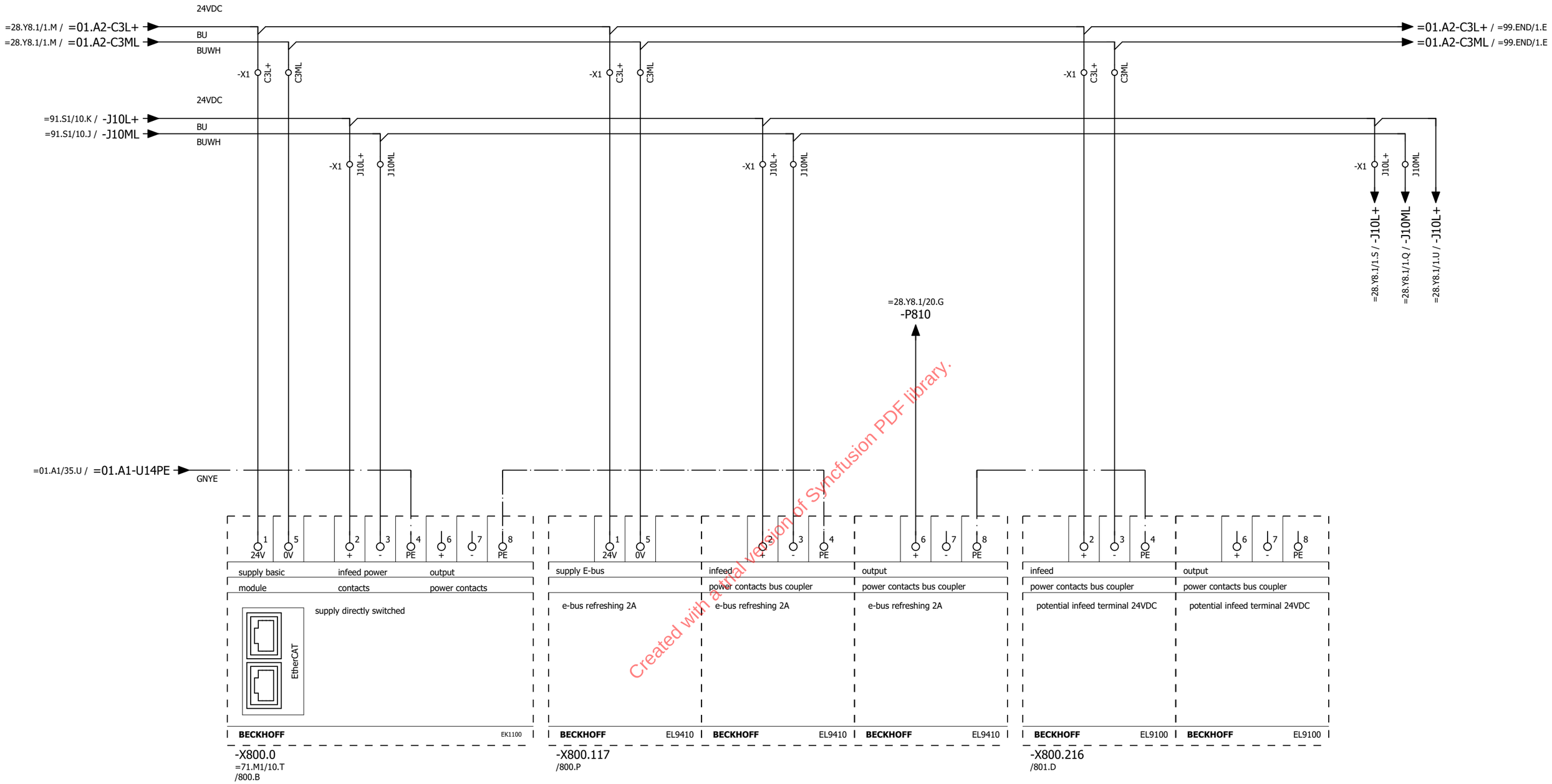
Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	assembly bus coupler measuring gauge +Z1		= 91.S1 + Z1	function page 800/810
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 196
change	date	name	norm		originally.	created for.	created by.				



Created with a trial version of Syncfusion PDF library.

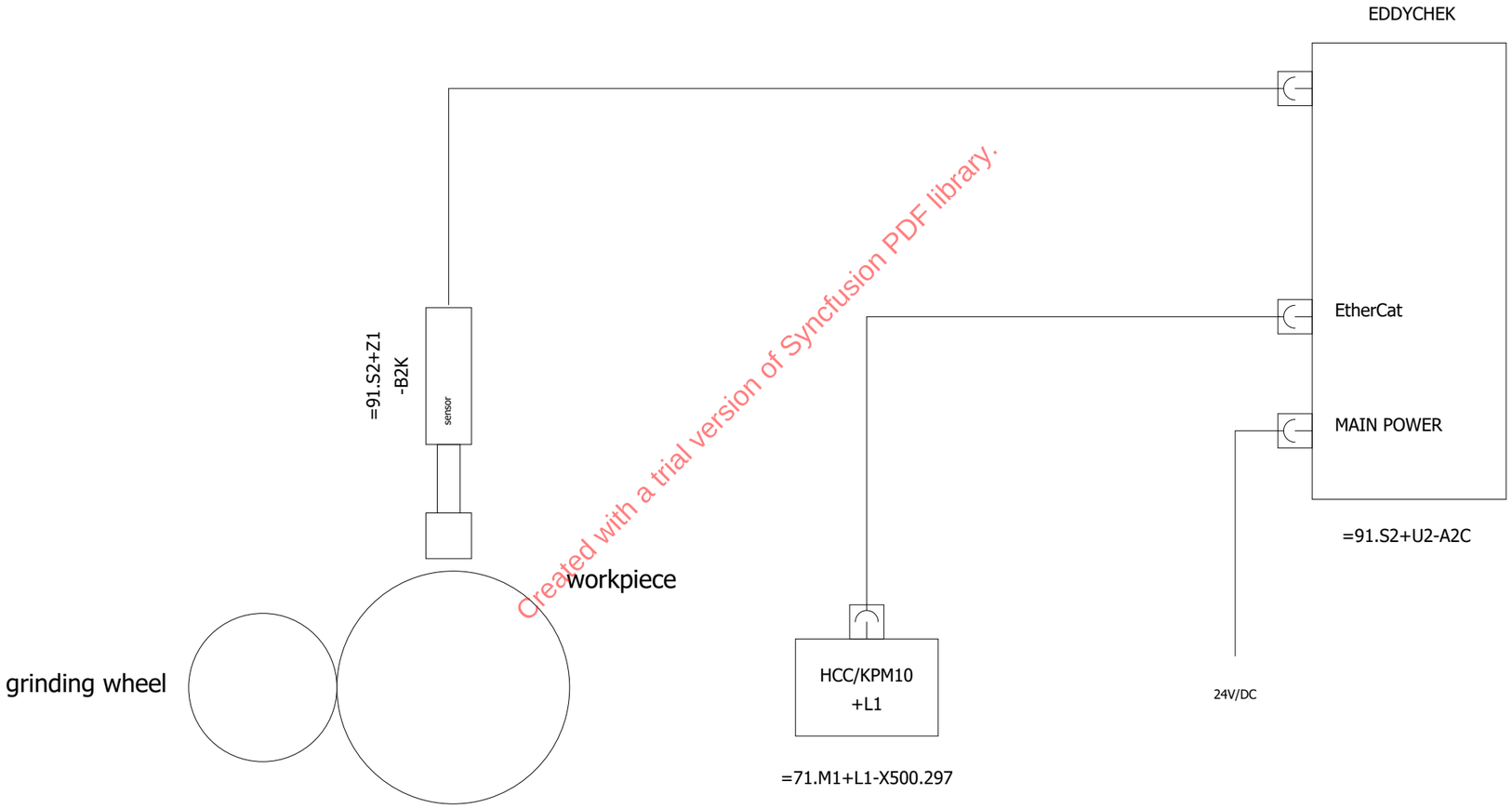
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	assembly bus coupler measuring gauge +Z1		= 91.S1 + Z1	function page 801/810
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 197
change	date	name	norm		originally.	created for.	created by.				



Created with a trial version of Syncfusion PDF library.

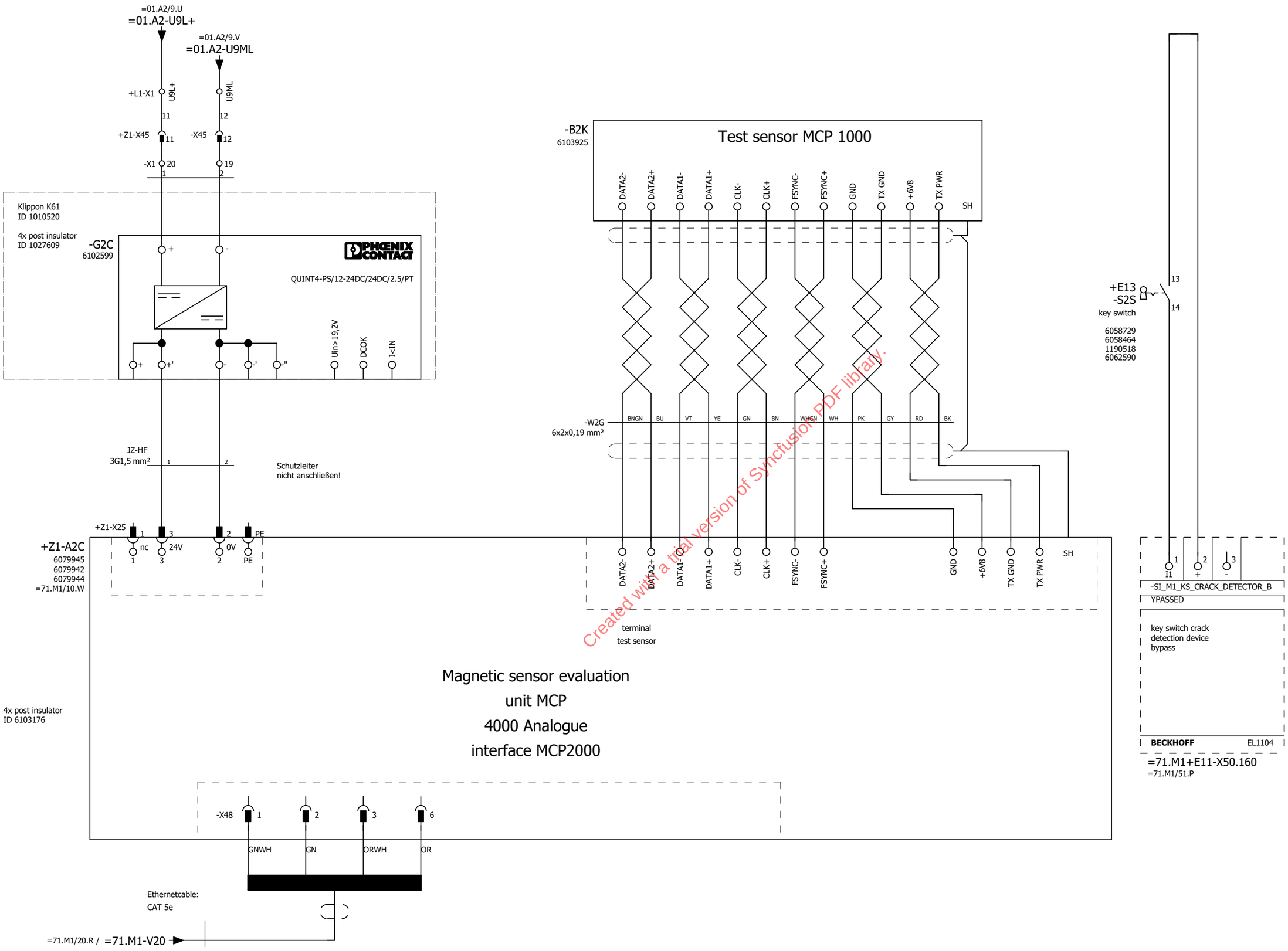
=.S2/1

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	supply Beckhoff modules X800		= 91.S1	function page
			design.	PED					+ Z1	810/810
			check.					98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.			198



Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	crack detection unit EDDYCHEK MCP16		= 91.S2	function page
			design.	PED						+ Z1	1/2
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				199

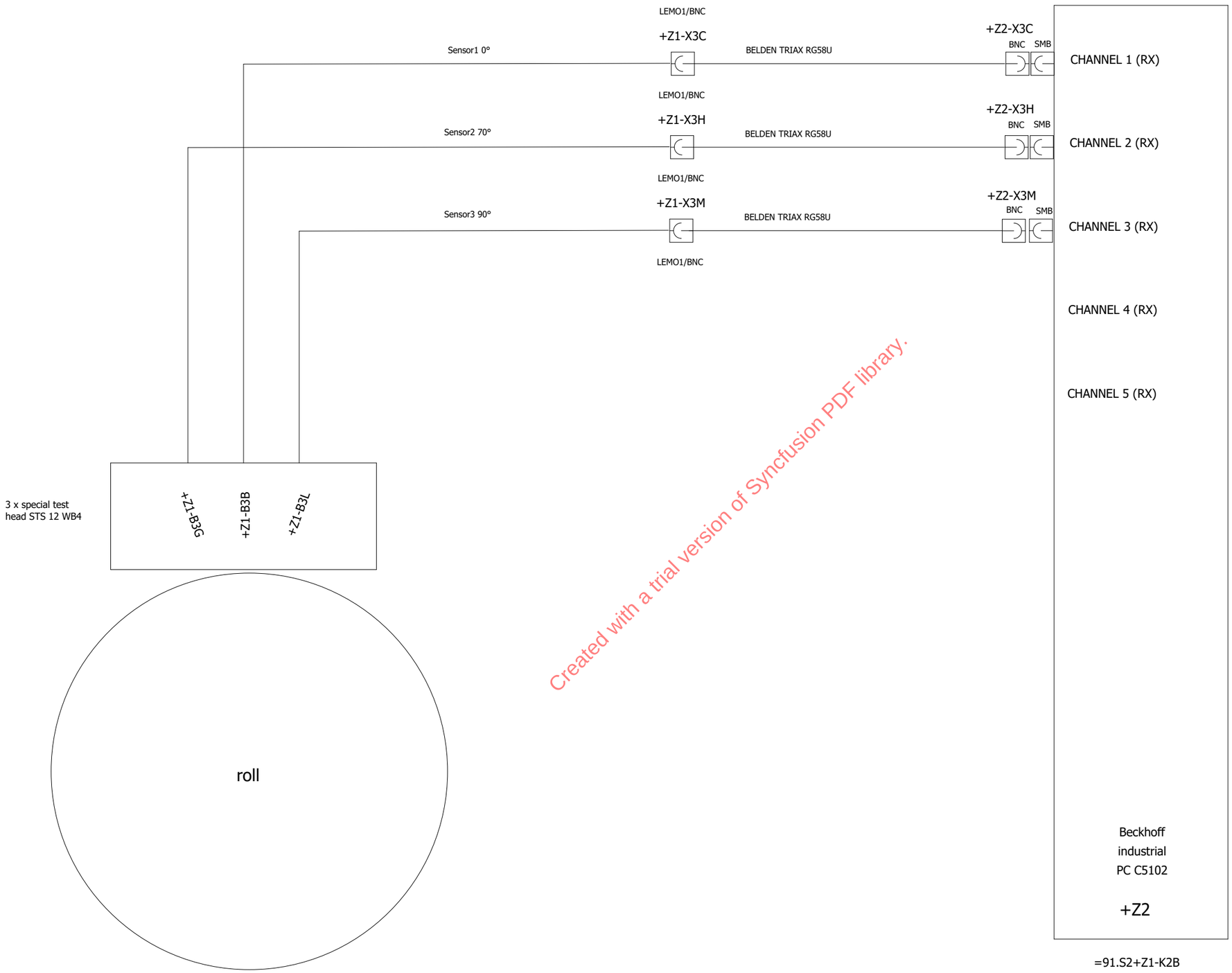


Created with a trial version of Syncfusion PDF library.

1

=.S3/1

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	crack detection unit EDDYCHEK MCP16		= 91.S2 + Z1	function page 2/2
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 200
change	date	name	norm		originally.	created for.	created by.				

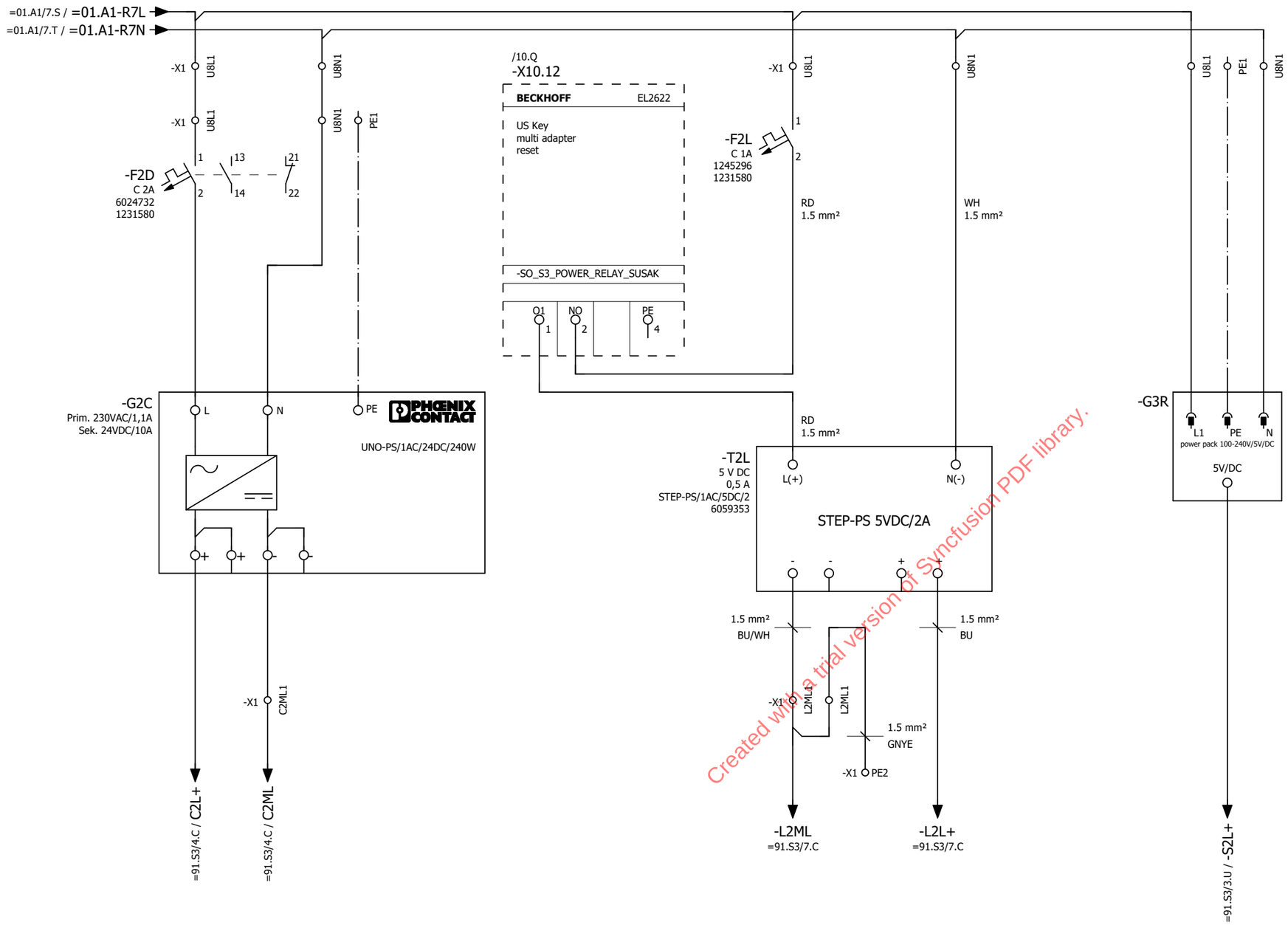


Created with a trial version of Syncfusion PDF library.

=.S2/2

2

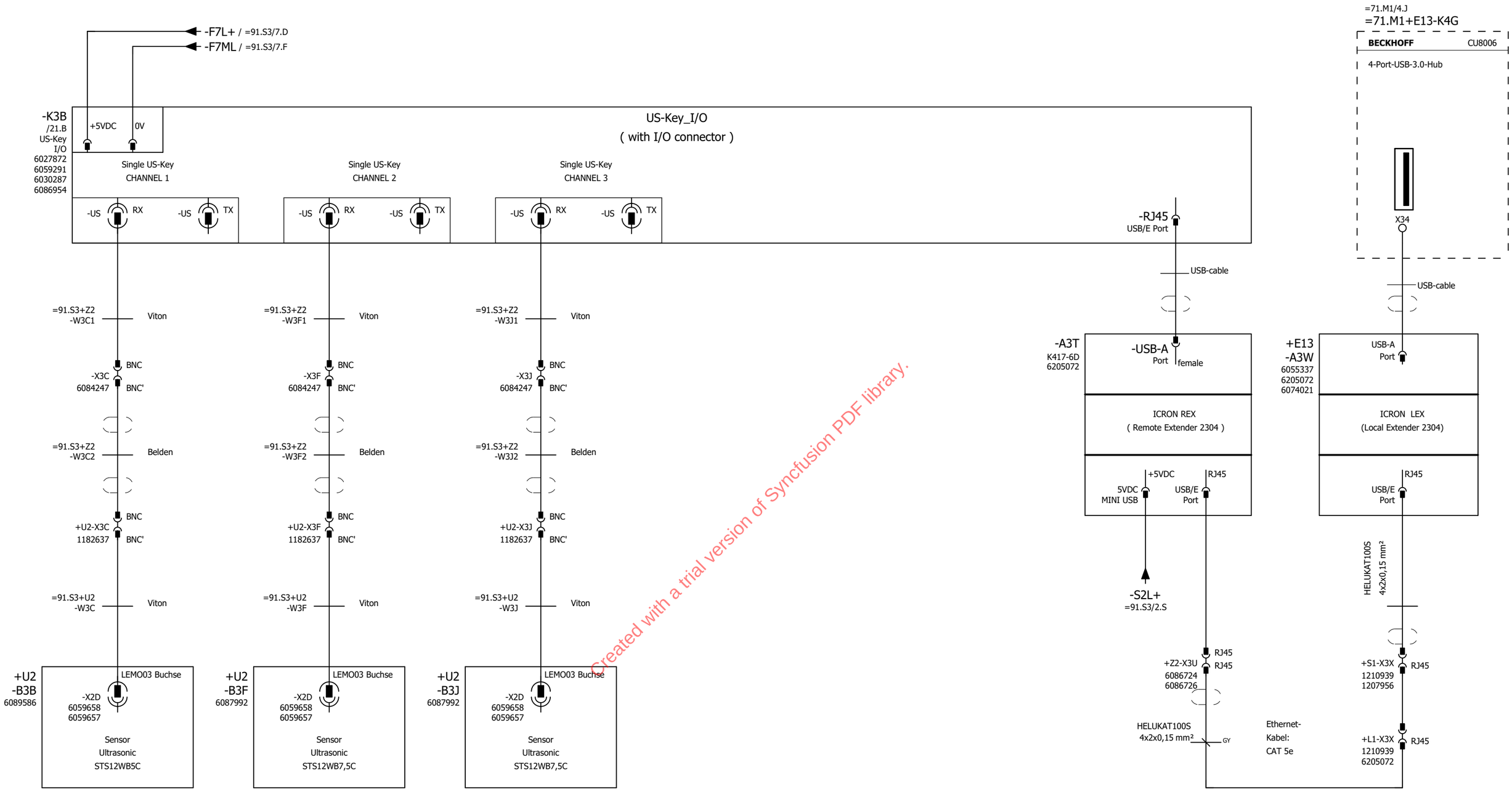
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	USONIC assembly sensors		= 91.S3	function page
			design.	PED						+ Z2	1/30
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				201



Created with a trial version of Syncfusion PDF library.

1 3

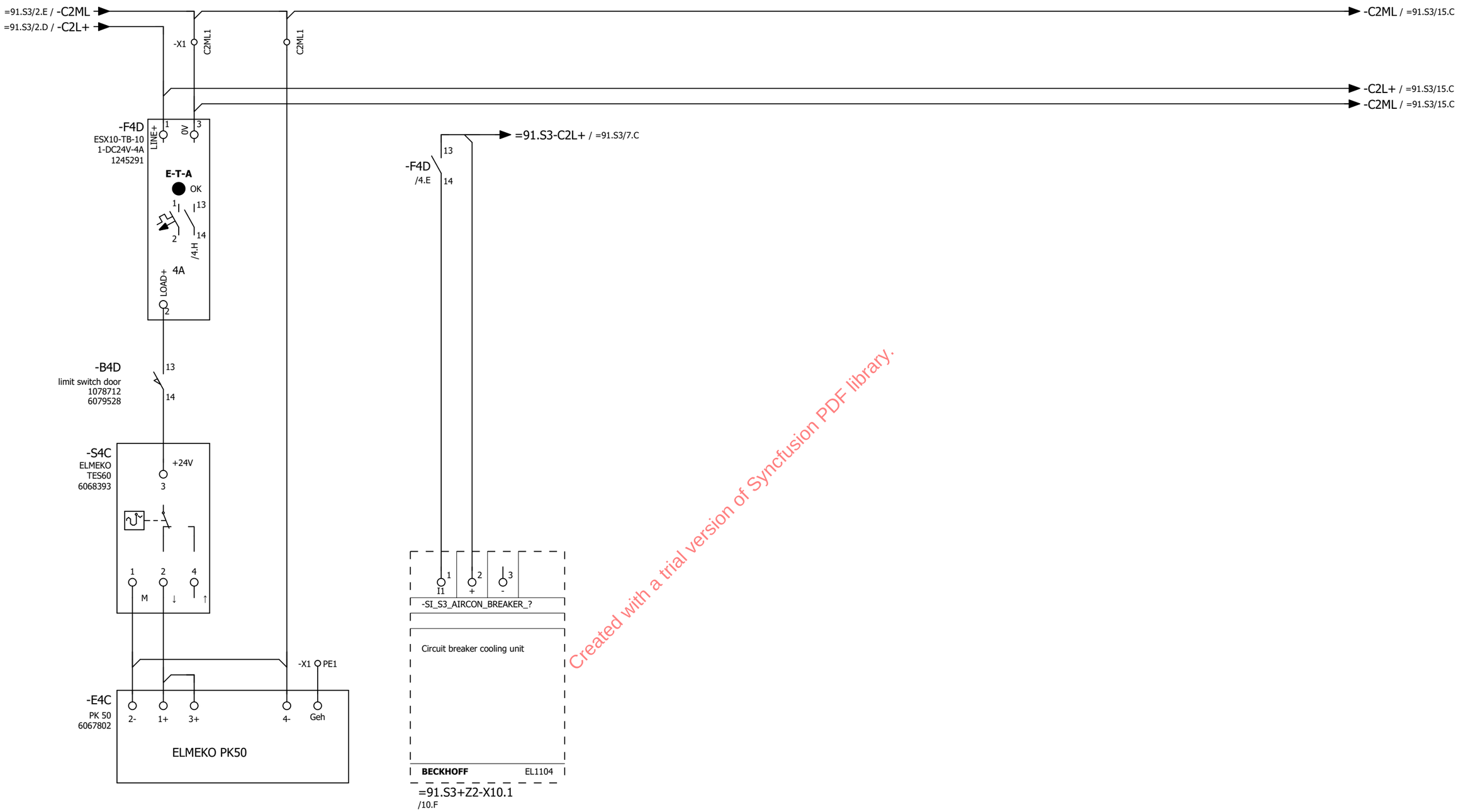
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	USONIC Sensors		= 91.S3 / + Z2	function page 2/30
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 202
change	date	name	norm		originally.	created for.	created by.				



Created with a trial version of Syncfusion PDF library.

2 4

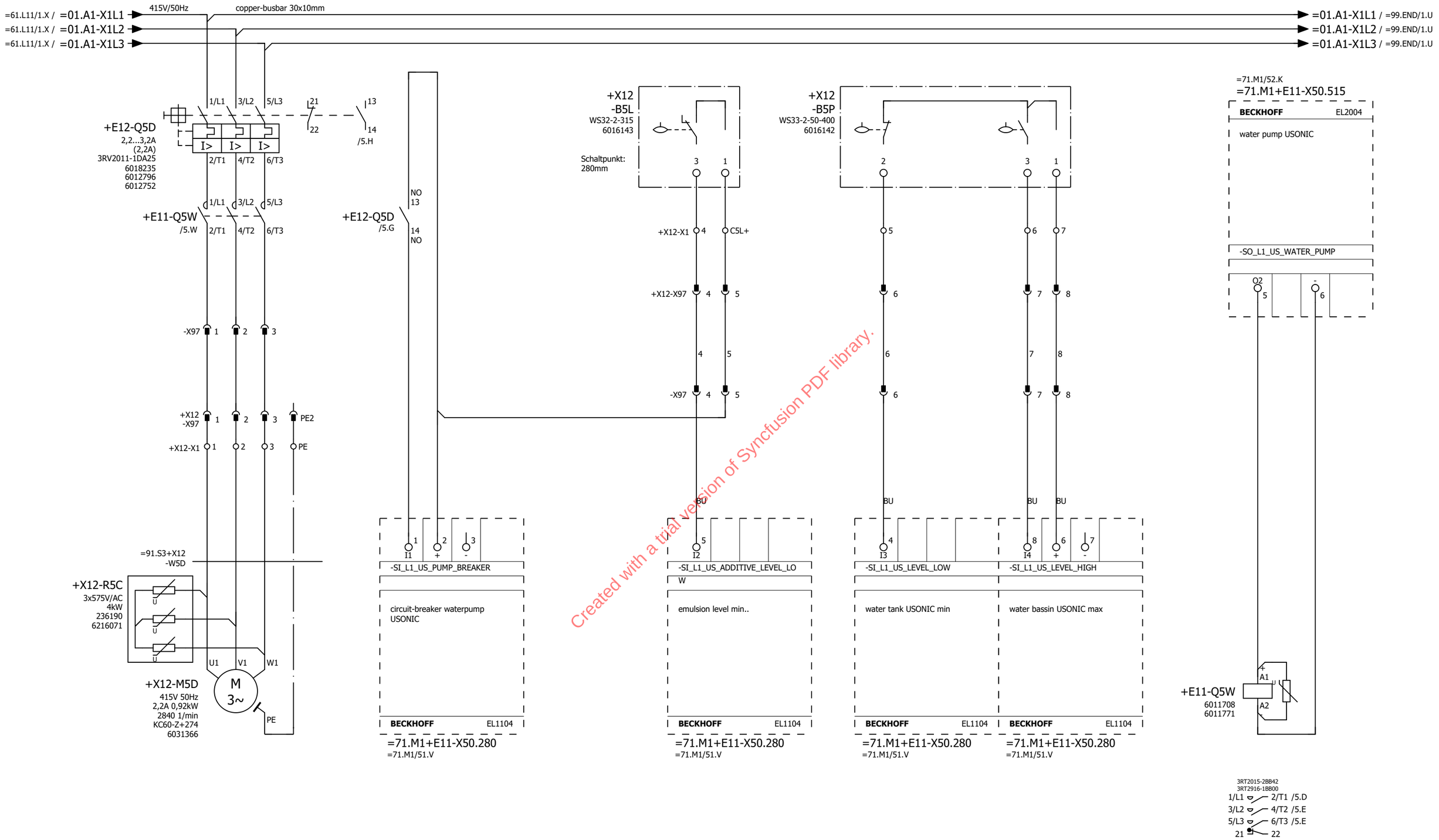
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	USONIC Sensors		= 91.S3	function page
			design.	PED						+ Z2	3/30
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				203



Created with a trial version of Syncfusion PDF library.

air condition
terminal box +Z2

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	control USONIC		= 91.S3	function page
			design.	PED						+ Z2	4/30
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				204



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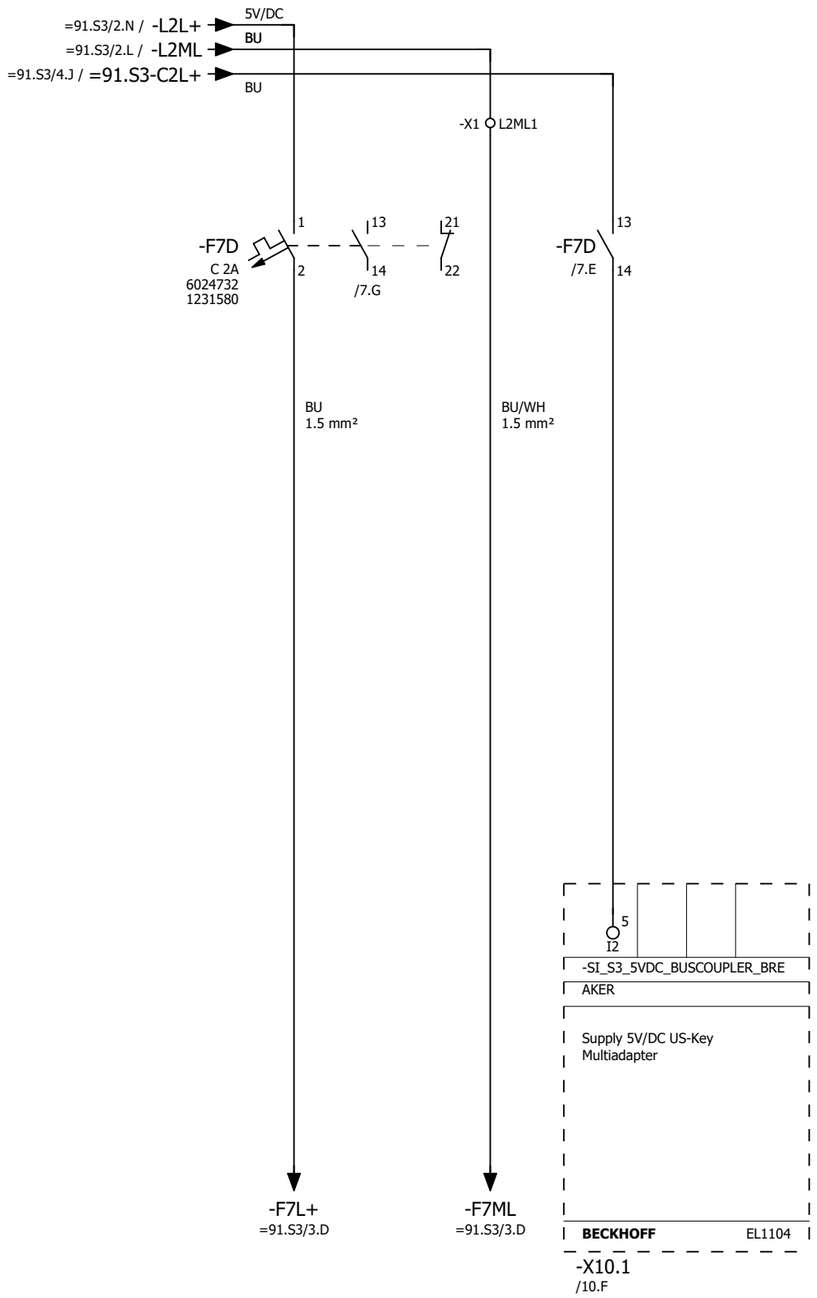
water pump
USONIC

4 7

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	USONIC water supply		= 91.S3	function page
			design.	PED					+ E13	5/30
			check.					98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.			205



Supply 5V/DC US-Key
Multiadapter

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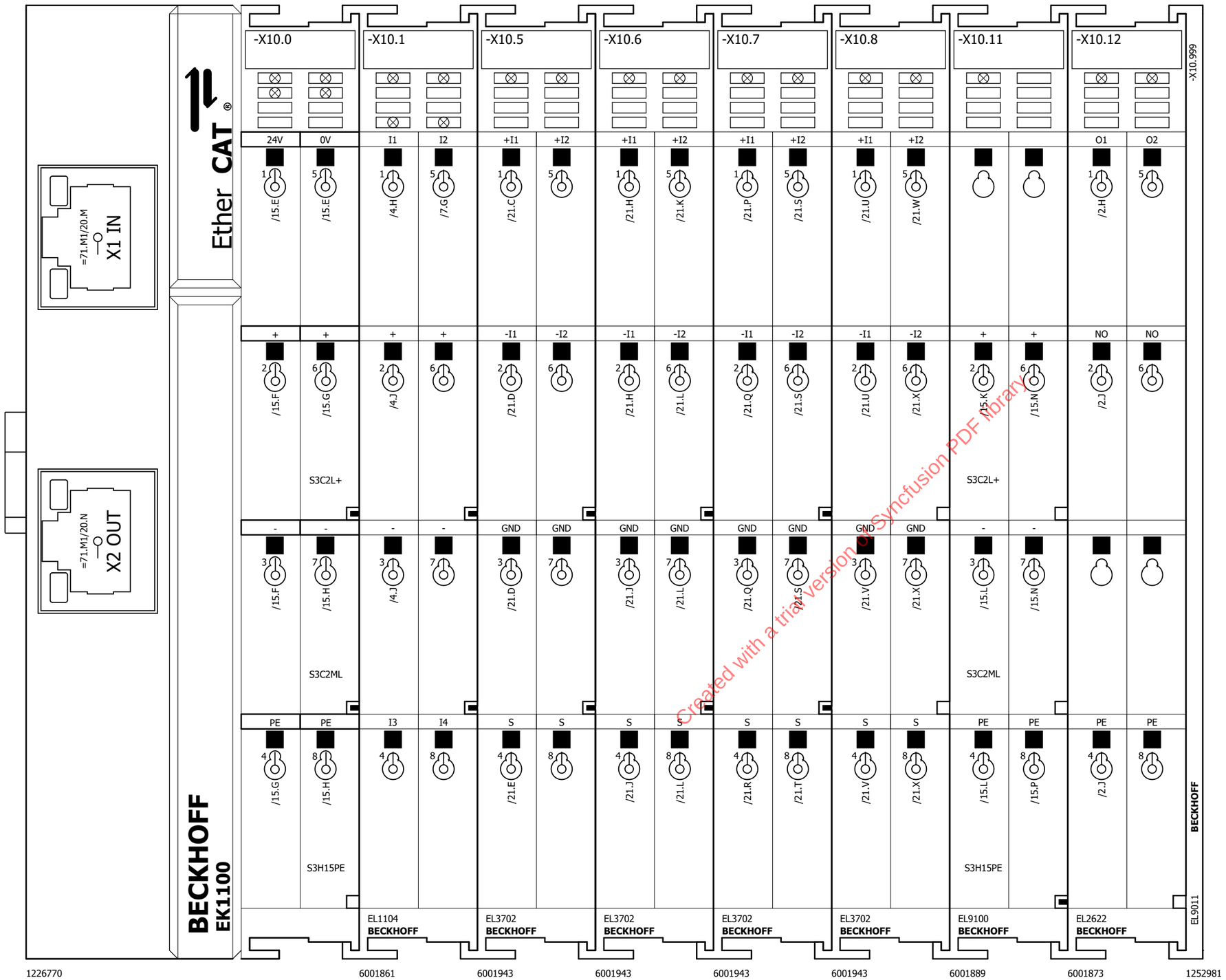
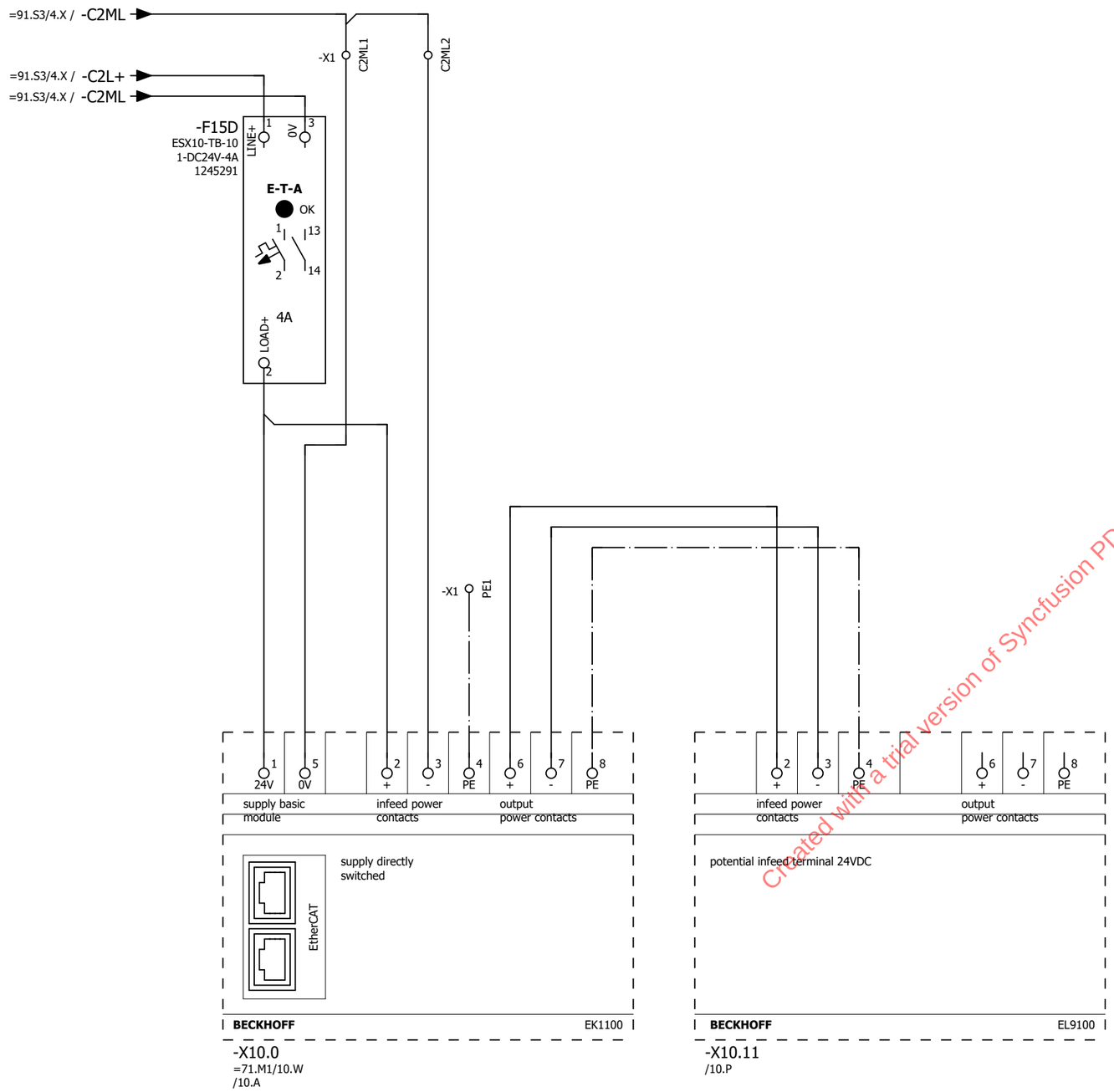
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	power supply USONIC		= 91.S3 / function page
			design.	PED						+ Z2 / 7/30
			check.						98290 WS450 KL x 5500 CNC Monolith	2953 / page
change	date	name	norm		originally.	created for.	created by.			206



Created with a trial version of Syncfusion PDF library

7 15

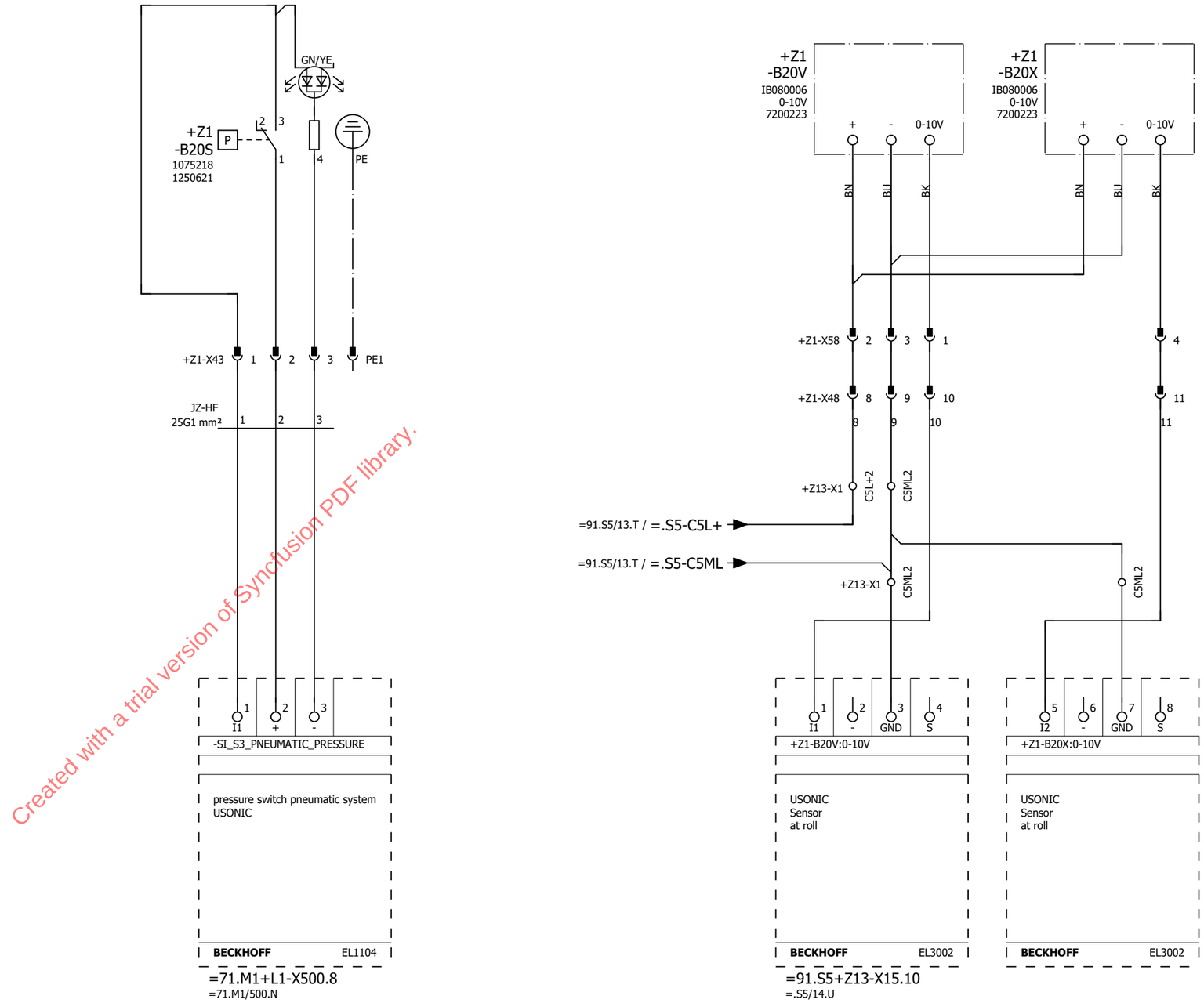
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	assembly bus coupler Ultrasonic +Z2		= 91.S3 + Z2	function page 10/30
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 207
change	date	name	norm		originally.	created for.	created by.				



Created with a trial version of Syncfusion PDF library.

10 20

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	supply Beckhoff modules X10		= 91.S3 + Z2	function page 15/30
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 208
change	date	name	norm		originally.	created for.	created by.				

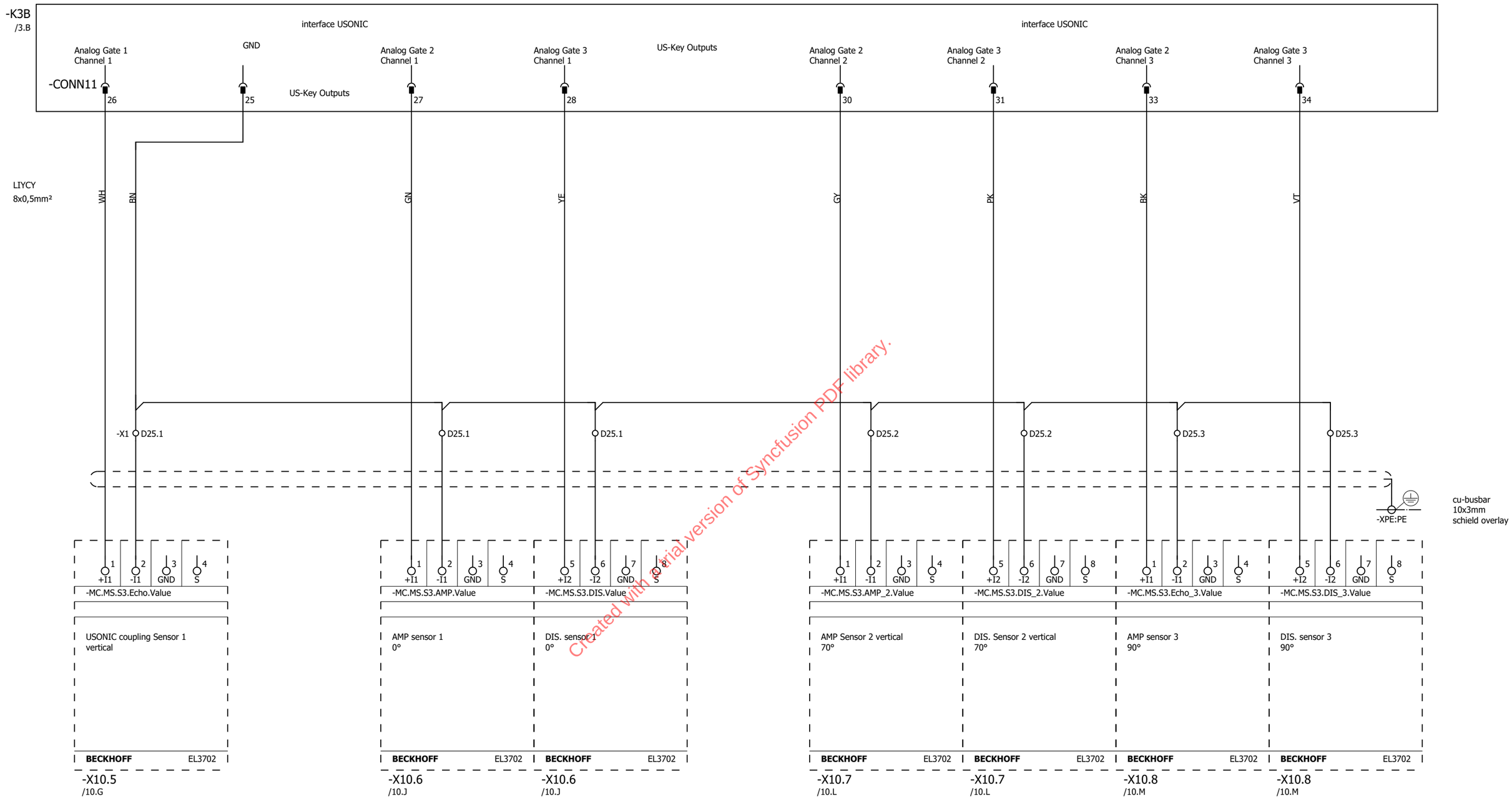


Created with a trial version of Syncfusion PDF library.

15

21

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	USONIC I/O		= 91.S3	function page
			design.	PED						+ E11	20/30
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				209

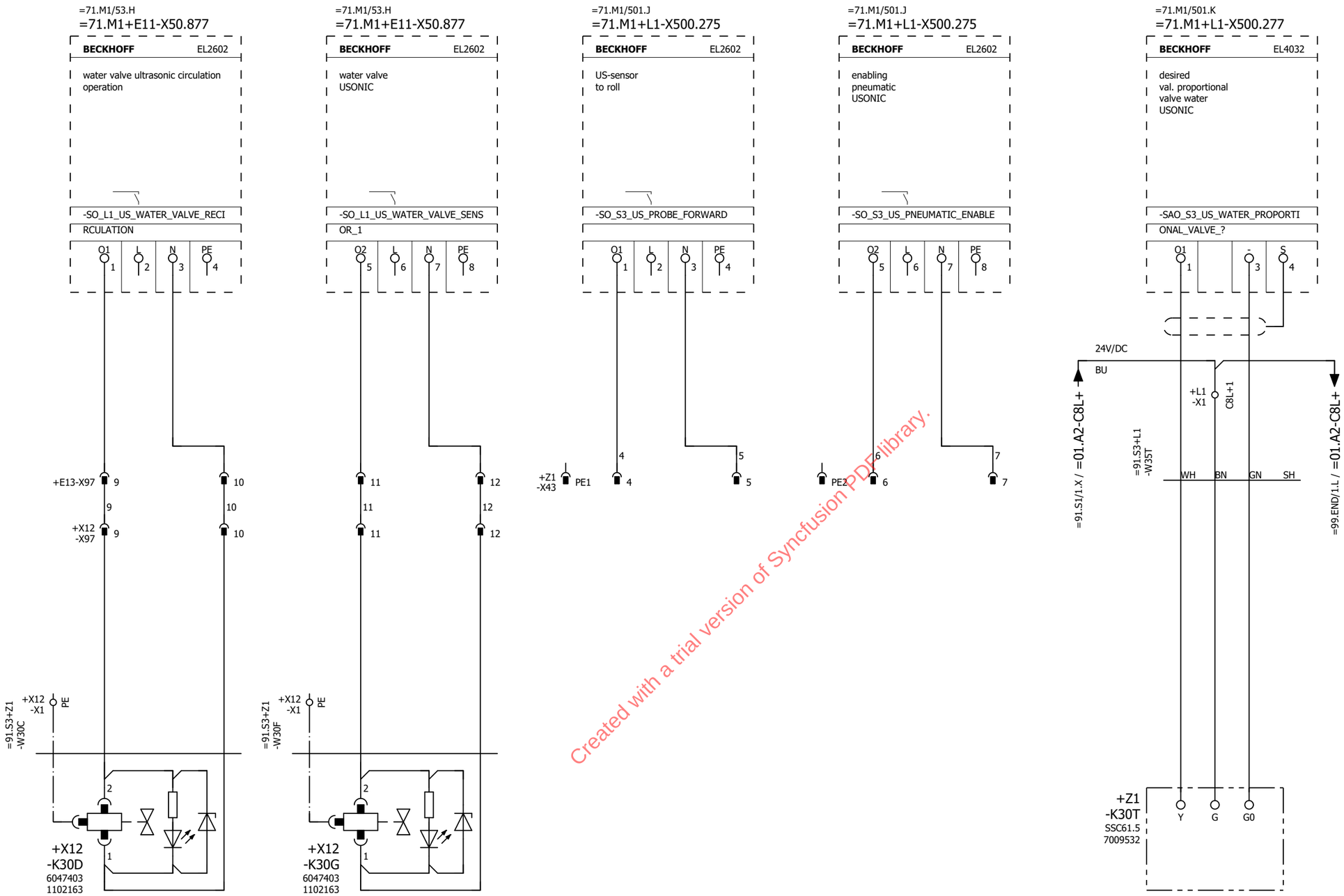


Created with a trial version of Syncfusion PDF library.

20

30

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	USONIC I/O		= 91.S3	function page
			design.	PED						+ Z2	21/30
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				210



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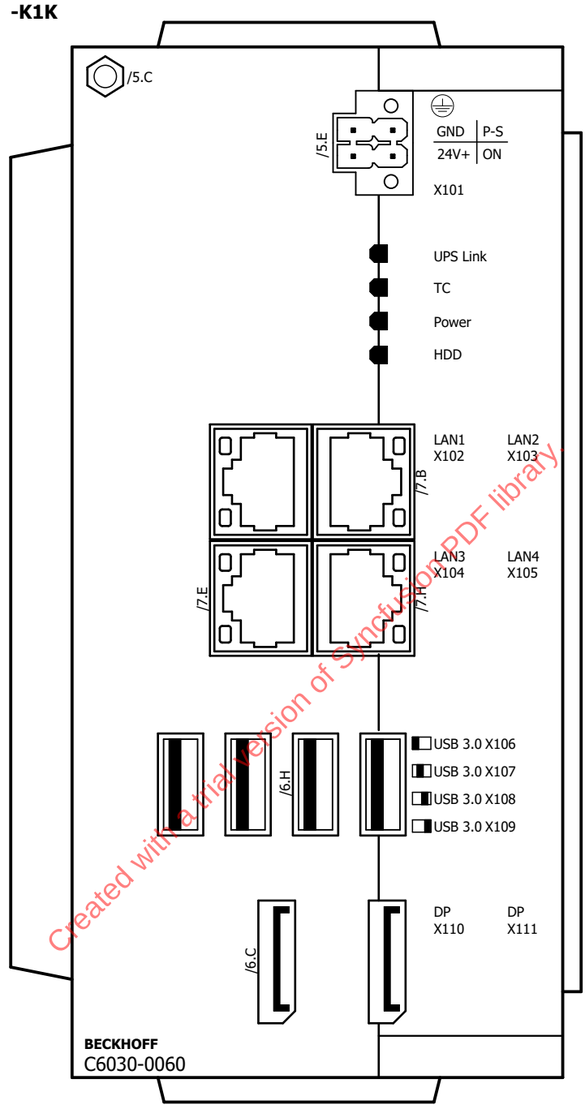
21

=.S5/1

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	USONIC I/O		= 91.S3 + E11	function page 30/30
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 211
change	date	name	norm		originally.	created for.	created by.				

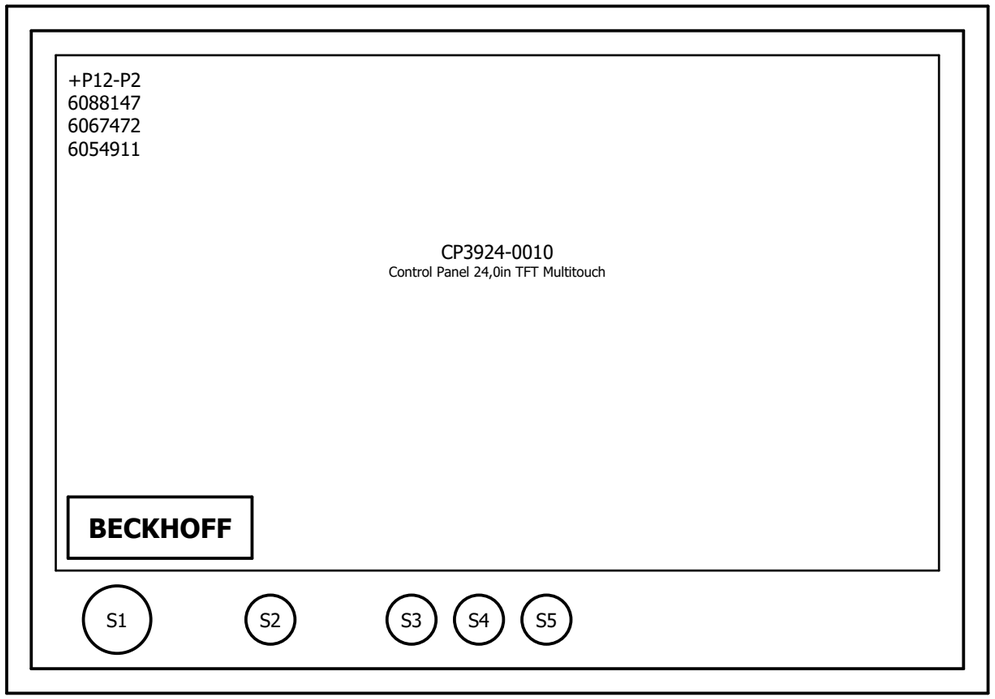
-K1K

6205072
6082189
6098875
6082240
1201767
6090668
6081753

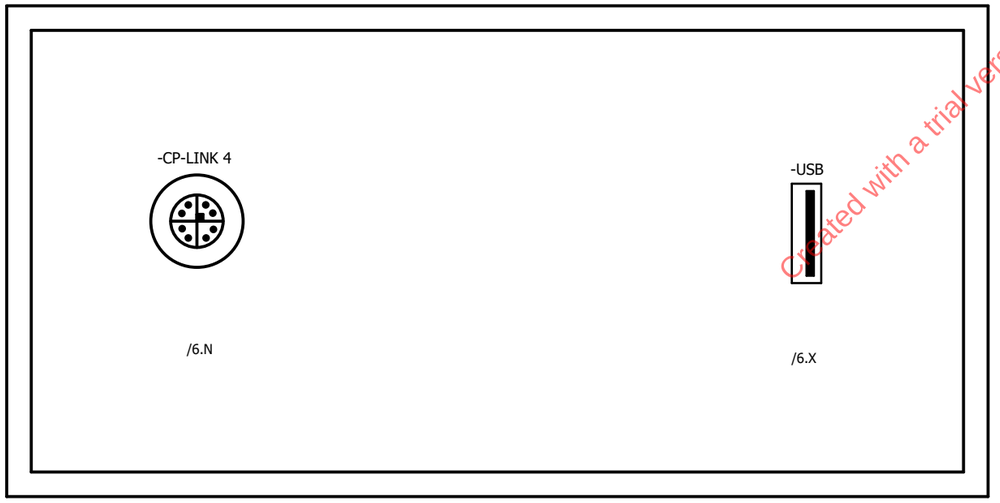


Created with a trial version of Syncfusion PDF library

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	roll surface inspection system RSIS overview PC		= 91.S5 + E13	function page 1/15
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 212
change	date	name	norm		originally.	created for.	created by.				



S1 - mushroom button red	emergency stop
S2 - illuminated push button yellow	emergency retreat
S3 - key switch momentary	selector switch 1. MSO 2 (set up mode/jog mode) 2. MSO 1 (automatic mode) 3. MSO 3 (special mode of operation/process monitoring) > with password (optional) If machine On: Longer than 3sec. press for emergency stop bypass
S4 - key switch latching	selection control panel
S5 - illuminated push button clear	function enable

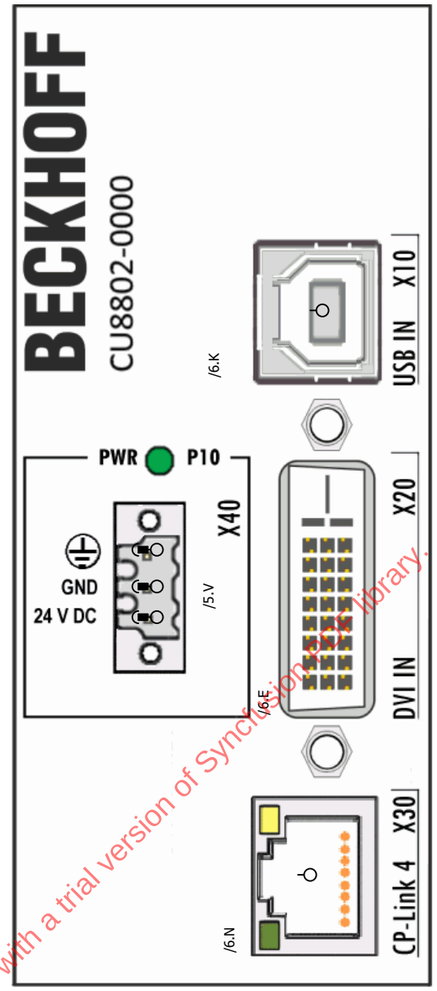


Created with a trial version of Syncfusion. PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	overview panel +P12		= 91.S5	function page
			design.	PED						+ P12	2/15
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				213

6088149
6205072

+E13-K4L



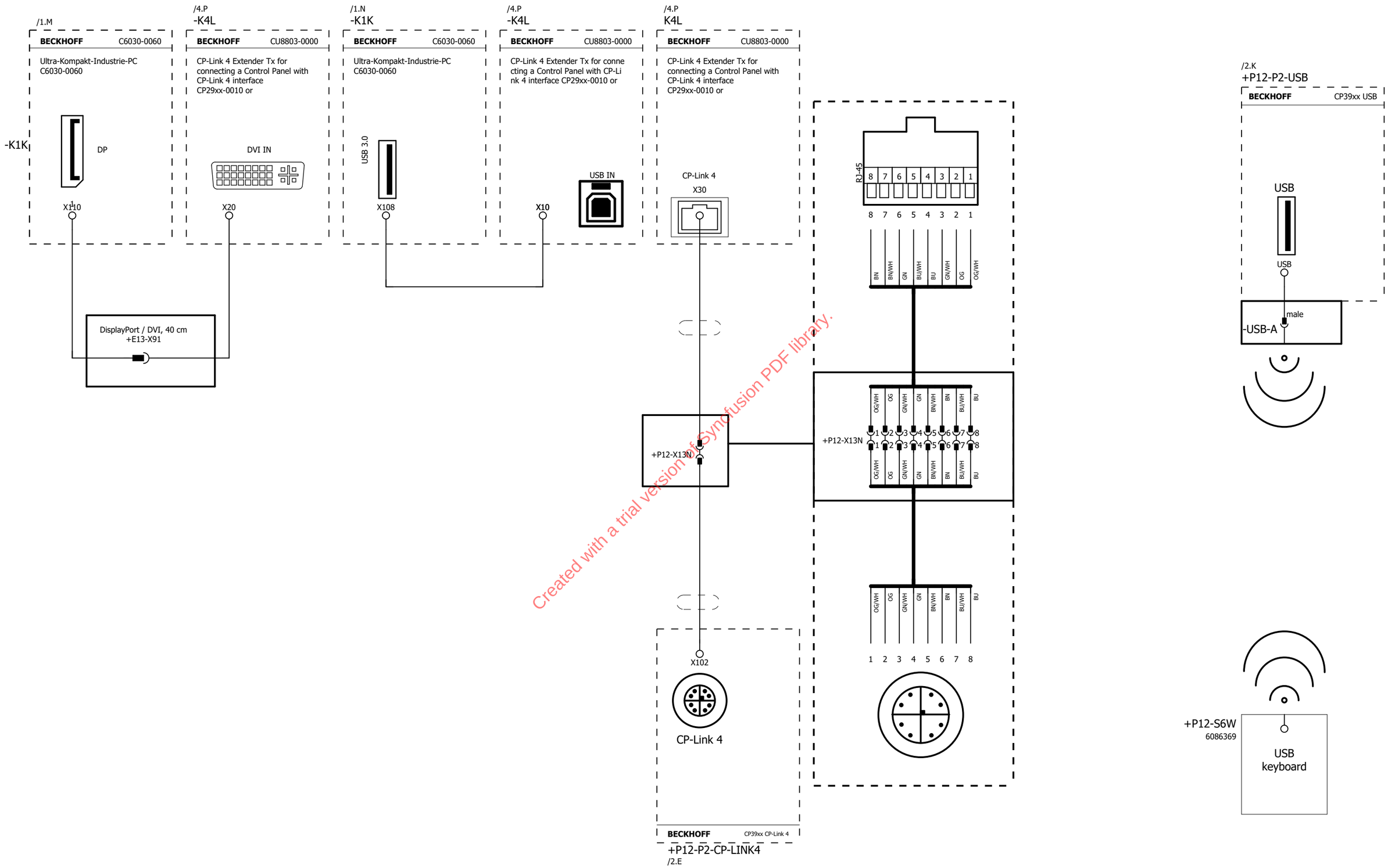
Created with a trial version of Synchronicity Library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	overview USB-extension		= 91.S5	function page
			design.	PED						+ E11	4/15
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				214

Created with a trial version of Syncfusion PDF library.

4 6

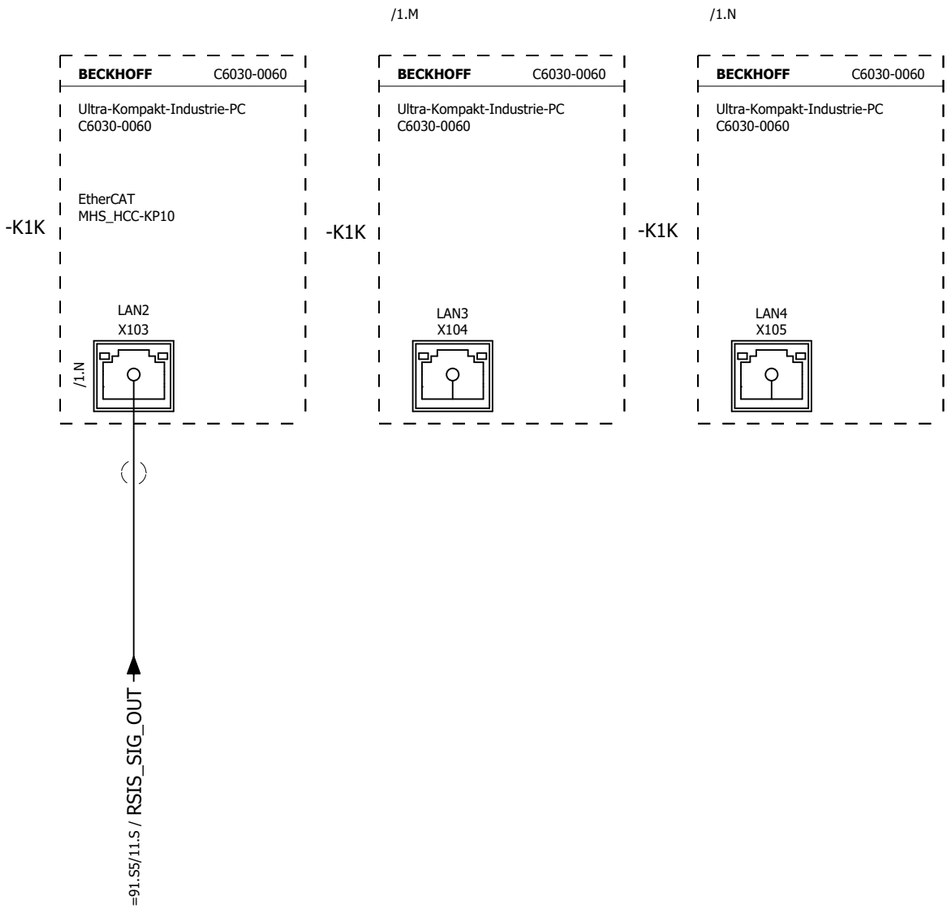
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	RSIS power supply PC		= 91.S5	function page
			design.	PED						+ E13	5/15
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				215



Created with a trial version of Syncfusion PDF library.

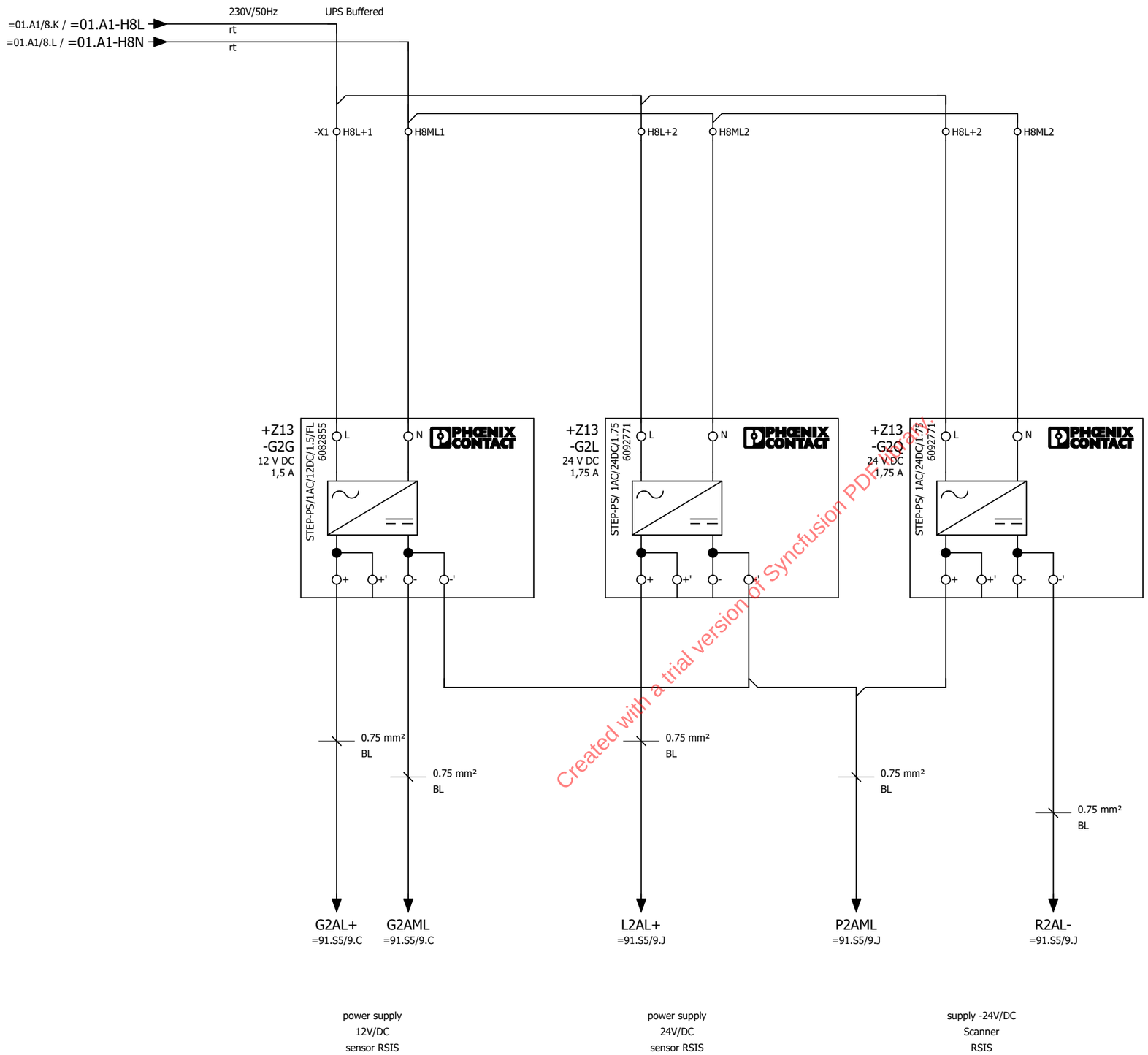
5 7

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	roll surface inspection system RSIS		= 91.S5	function page
			design.	PED						+ E13	6/15
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				216



Created with a trial version of Syncfusion PDF library.

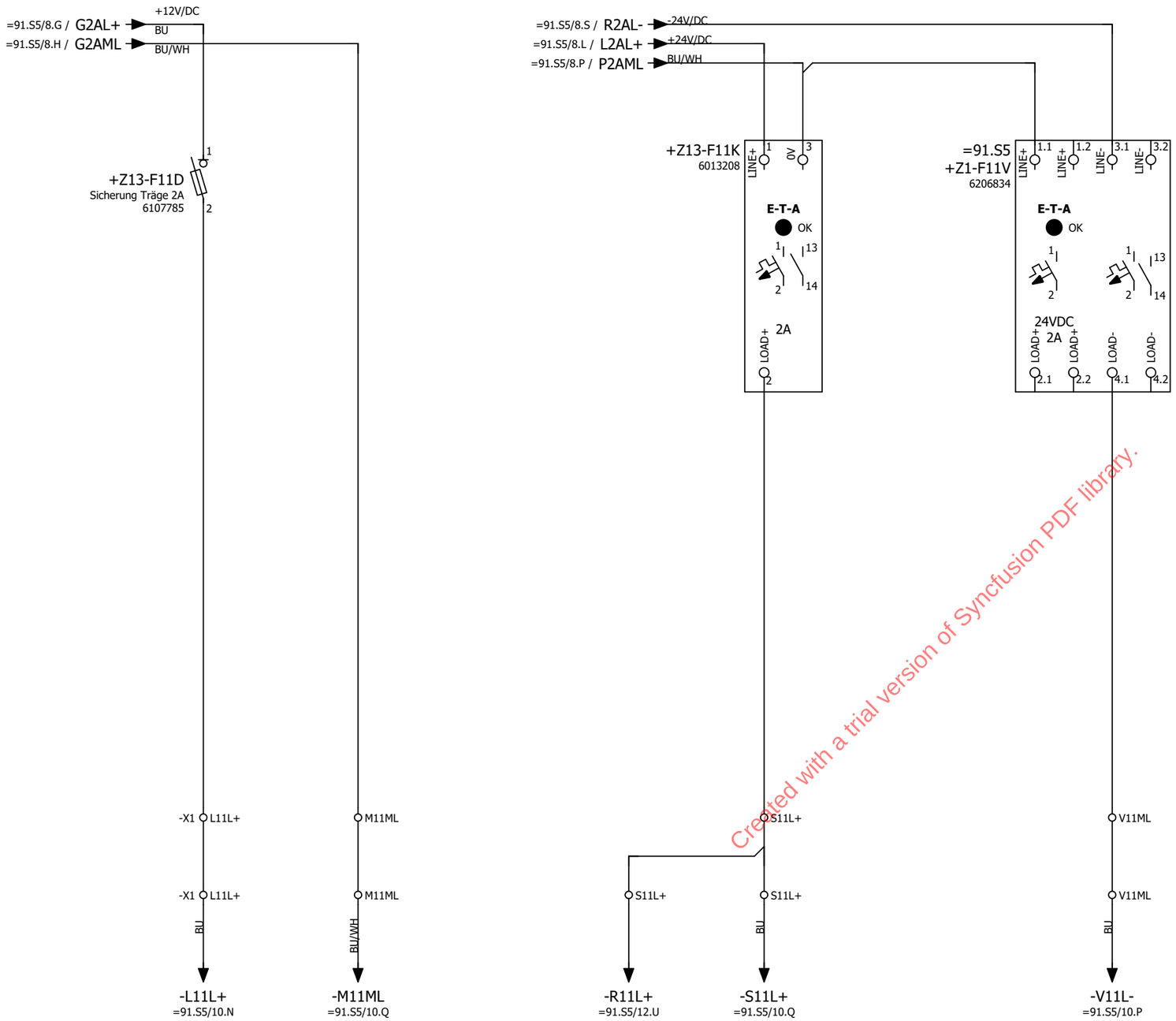
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	roll surface inspection system RSIS		= 91.S5	function page
			design.	PED						+ E13	7/15
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				217



Created with a trial version of Syncfusion PDF Library

7 9

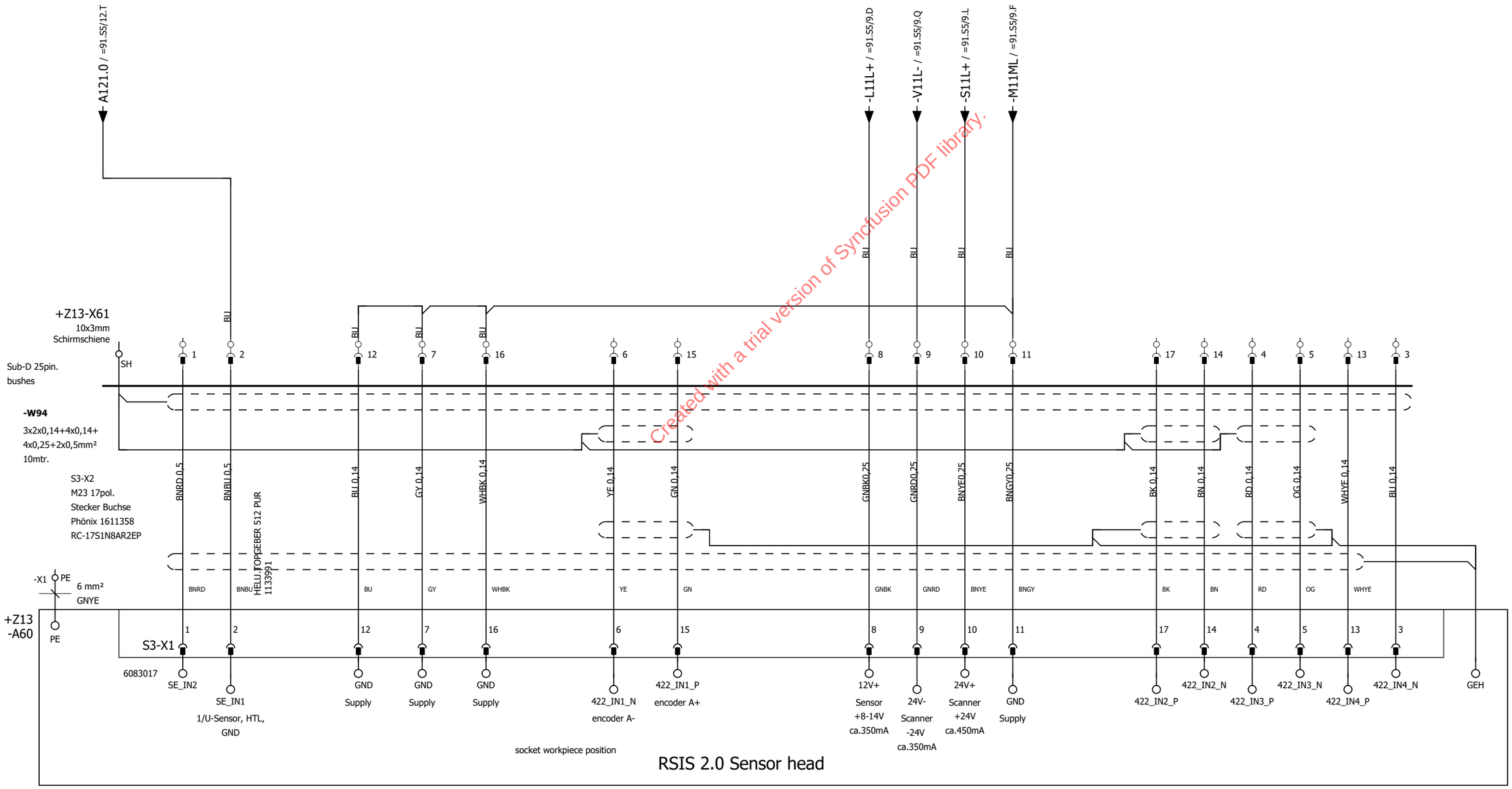
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	power supply roll surface inspection system RSIS 2.0		= 91.S5 + Z13	function page 8/15
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 218
change	date	name	norm		originally.	created for.	created by.				



Created with a trial version of Syncfusion PDF library.

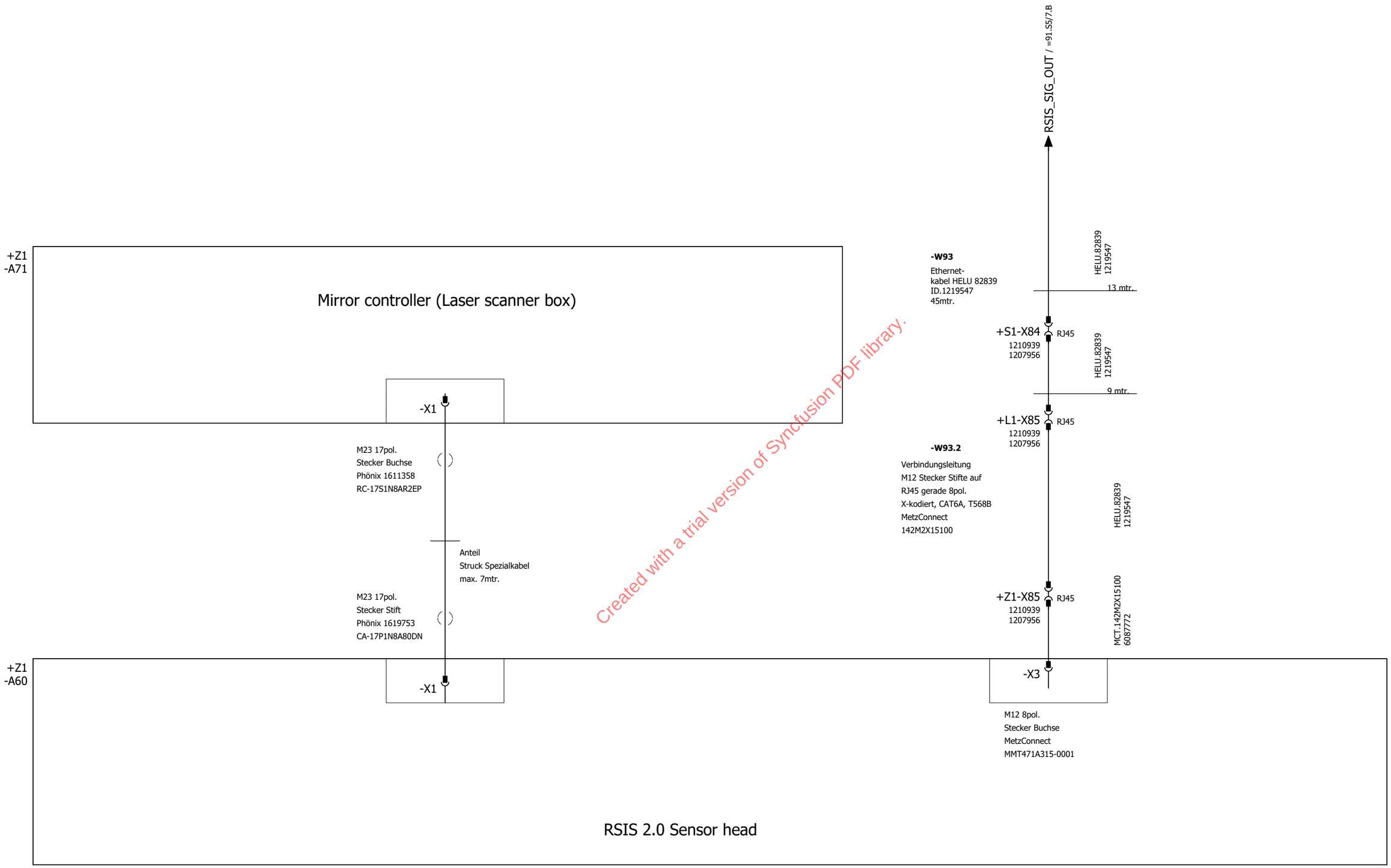
8 10

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	power supply roll surface inspection system RSIS 2.0	= 91.S5	function page
			design.	PED					+ Z13	9/15
			check.					98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.			219



Created with a trial version of Syncfusion PDF library.

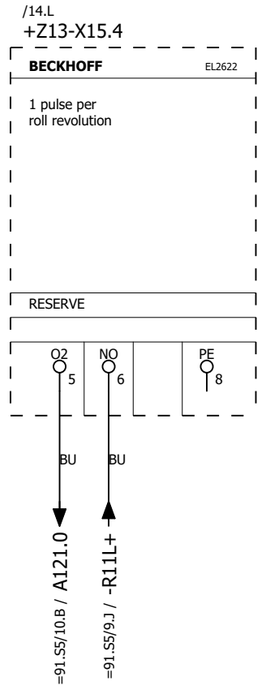
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	power supply roll surface inspection system RSIS 2.0		= 91.S5 + Z13	function page 10/15
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 220
change	date	name	norm		originally.	created for.	created by.				



Created with a trial version of Syncfusion PDF library.

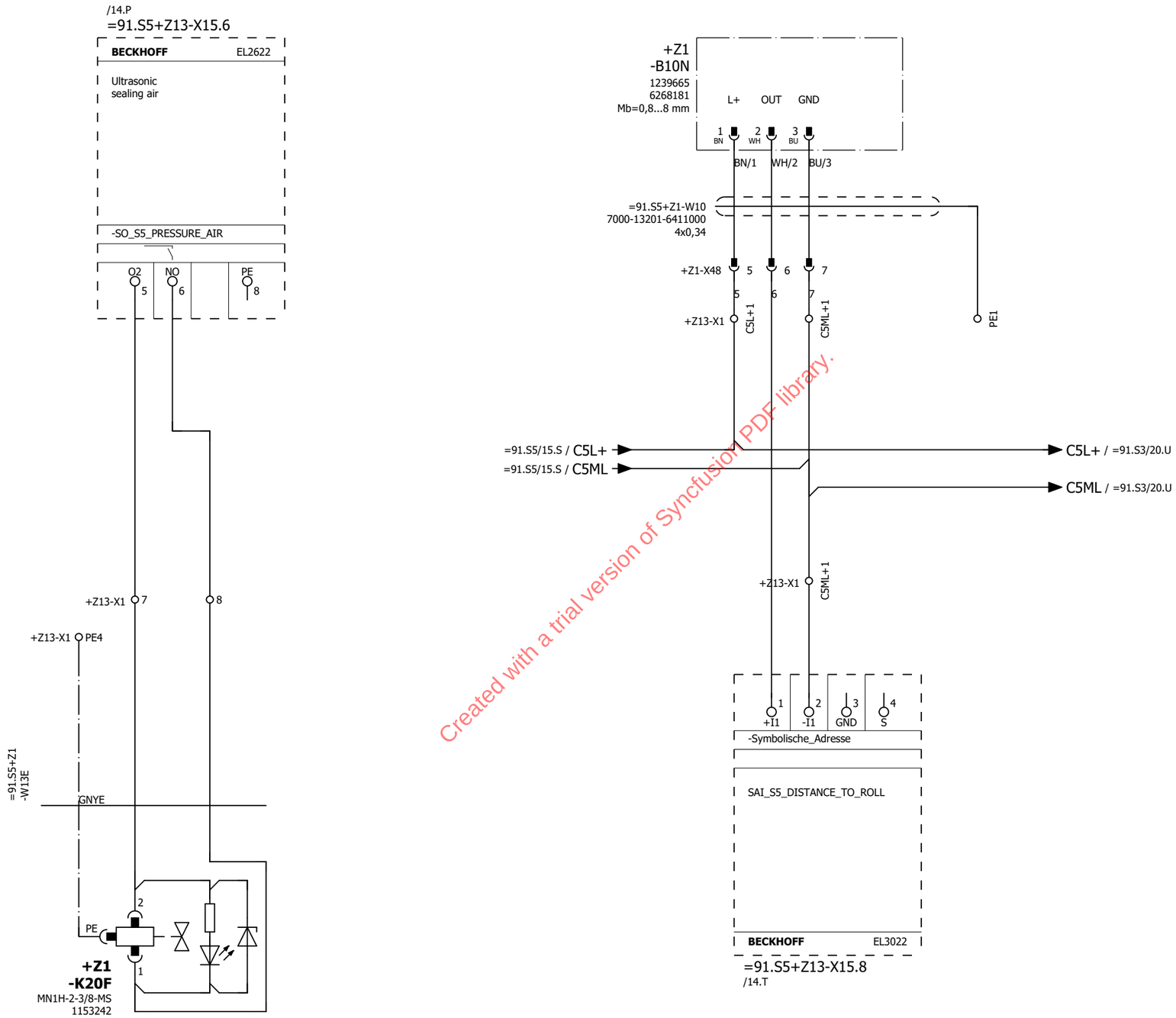
10 12

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	power supply roll surface inspection system RSIS 2.0		= 91.S5 + Z1	function page 11/15
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 221
change	date	name	norm		originally.	created for.	created by.				



Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	RSIS roll surface inspection system I/O		= 91.S5	function page
			design.	PED						+ Z1	12/15
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				222

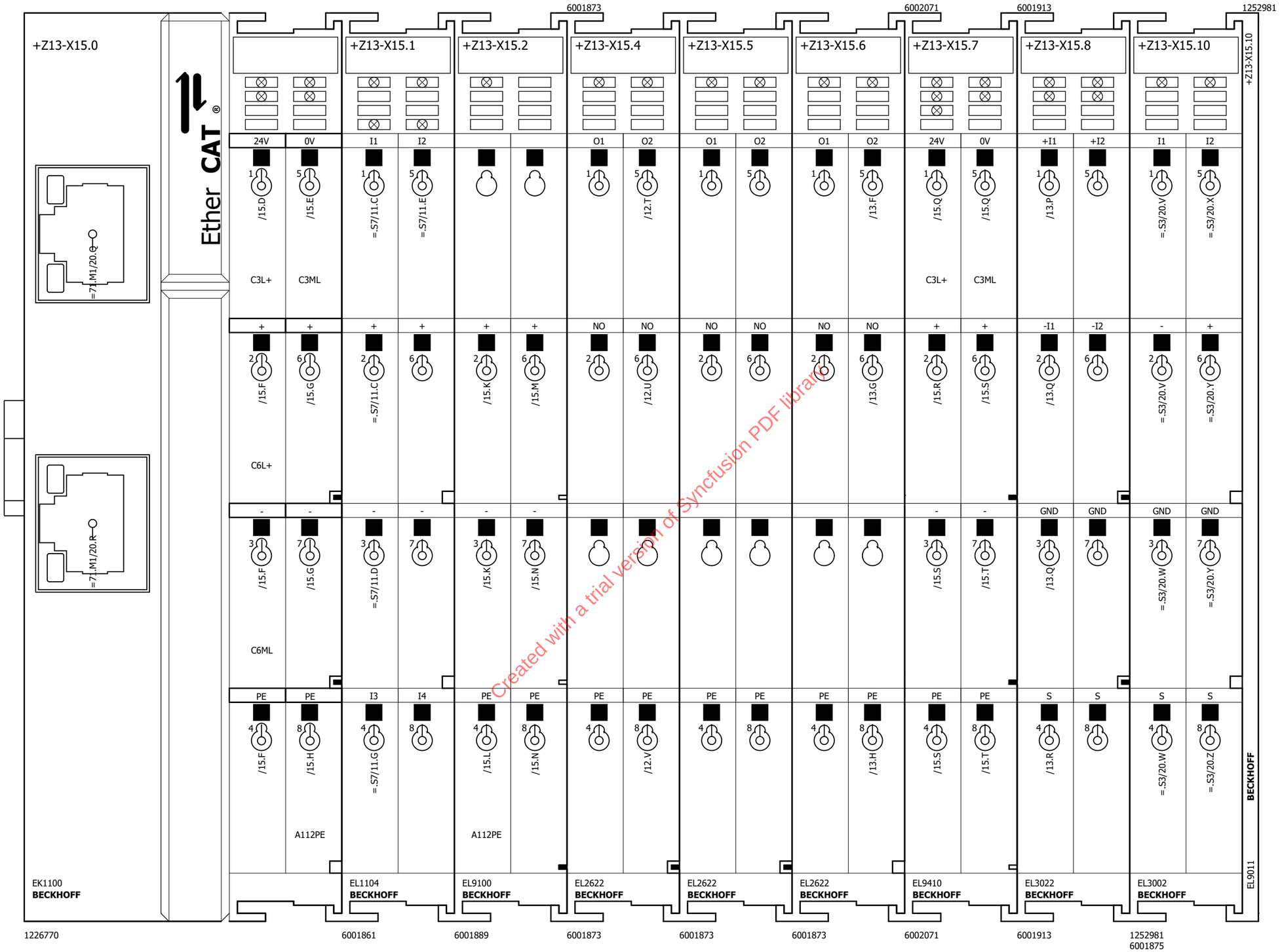


RSIS
barrier air

RSIS
sensor
at roll

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	RSIS roll surface inspection system I/O		= 91.S5	function page
			design.	PED						+ Z1	13/15
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				223



Created with a trial version of Syncfusion PDF library

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	assembly bus coupler RSIS +Z1		= 91.S5	function page
			design.	PED						+ Z1	14/15
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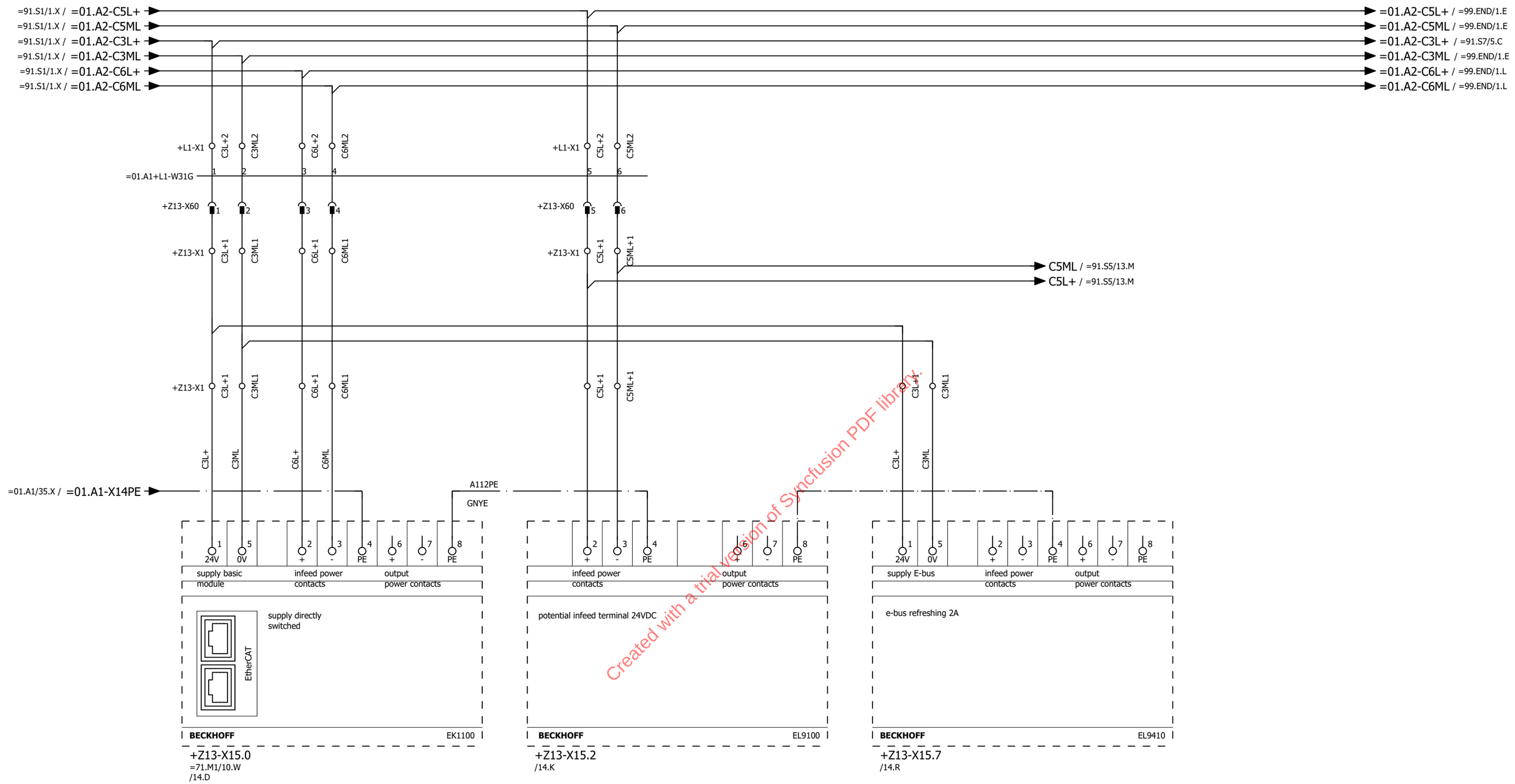
change	date	name	norm		originally.	created for.	created by.				224



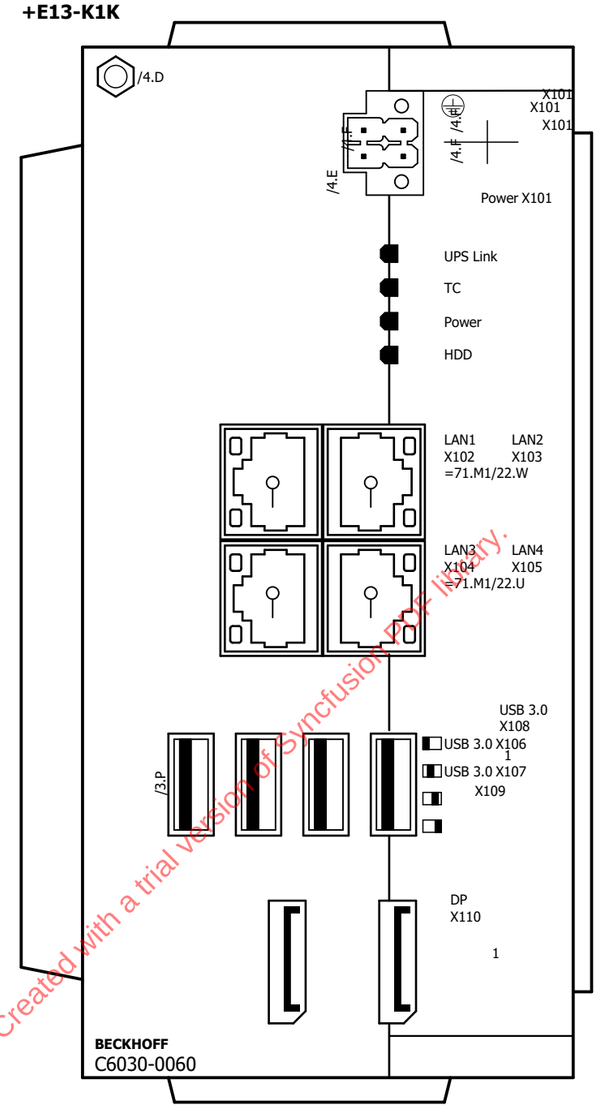
Created with a trial version of Syncfusion PDF library

=.S7/1

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	supply Beckhoff modules X15		= 91.S5 + Z1	function page 15/15
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 225
change	date	name	norm		originally.	created for.	created by.				

+E13-K1K

6205072
6061627
6061622
1201767
6090667
1205881
6081753

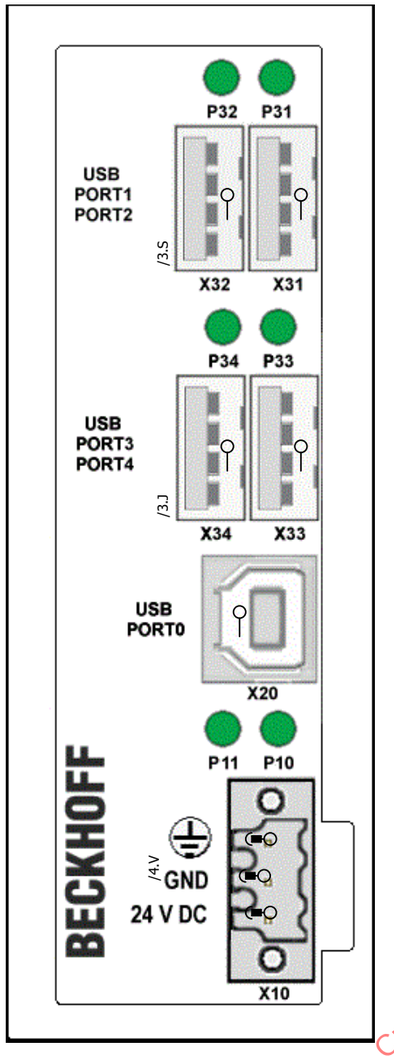


Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	optoserv overview pc		= 91.S7 / + E11	function page 1/20
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 226
change	date	name	norm		originally.	created for.	created by.				

6049134

+E13-K2G

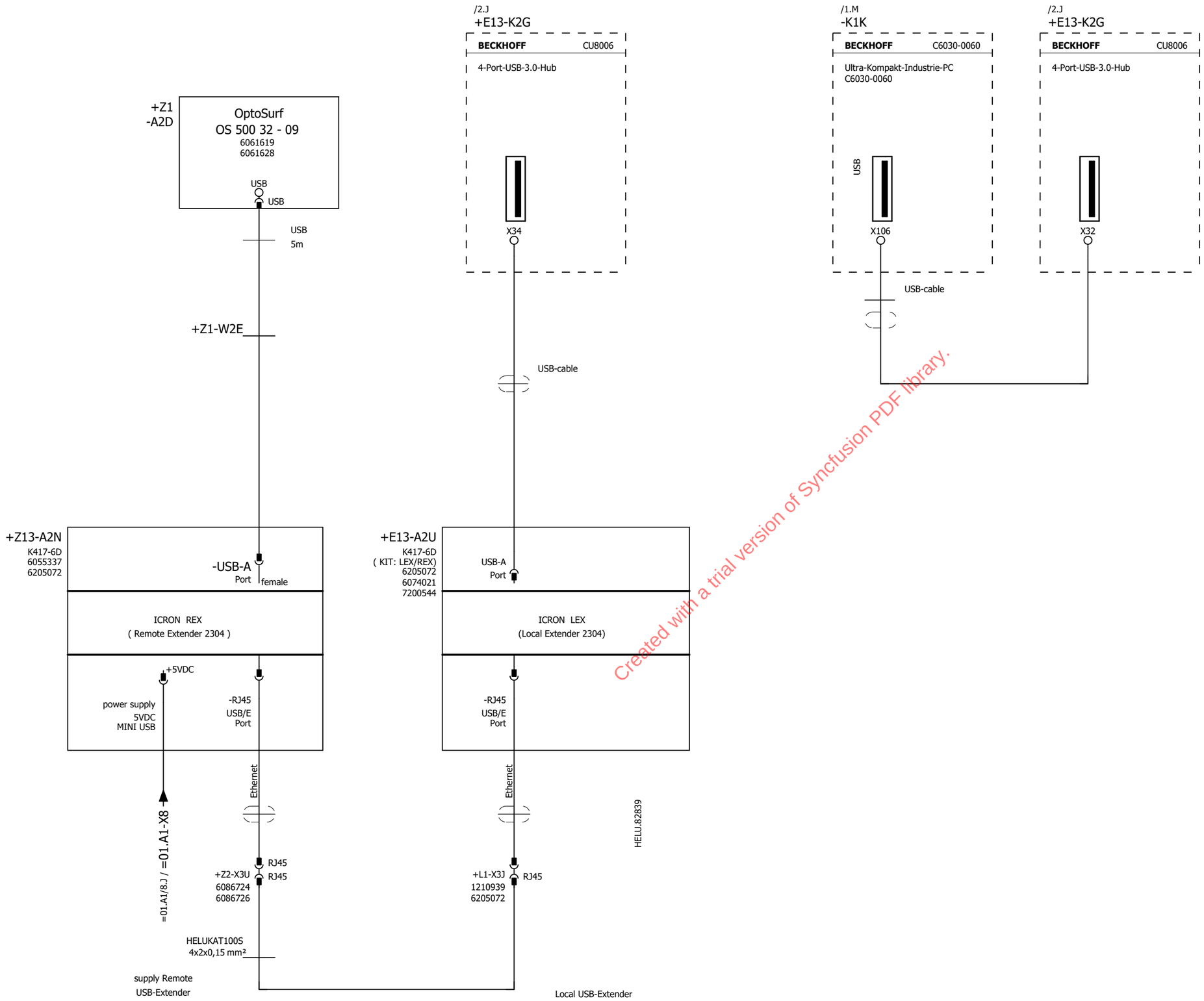


Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	overview USB-extension		= 91.S7
			design.	PED						+ E11
			check.						98290 WS450 KL x 5500 CNC Monolith	2953
change	date	name	norm		originally.	created for.	created by.			

function page 2/20

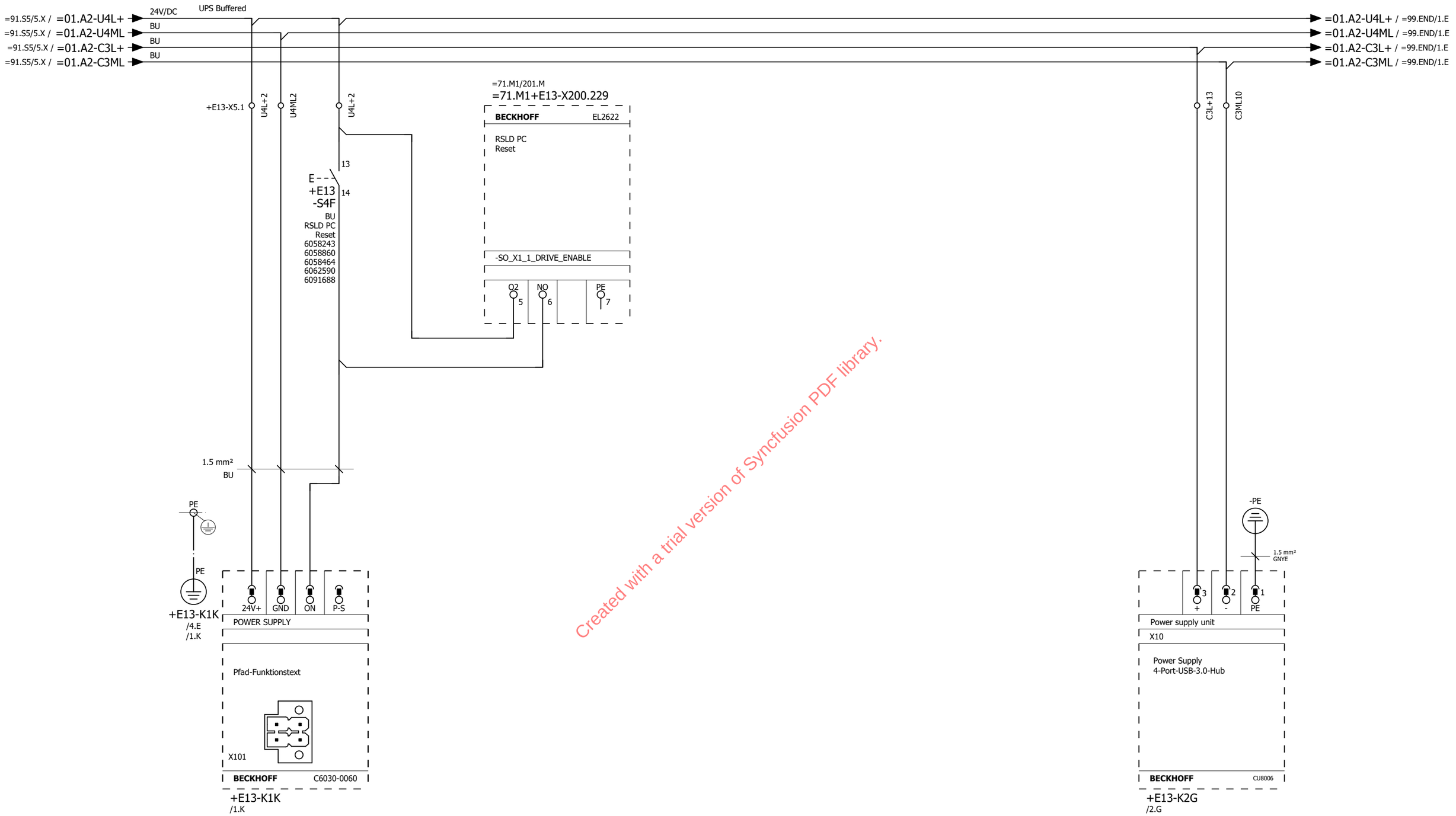
page 227



Created with a trial version of Syncfusion PDF library.

2 4

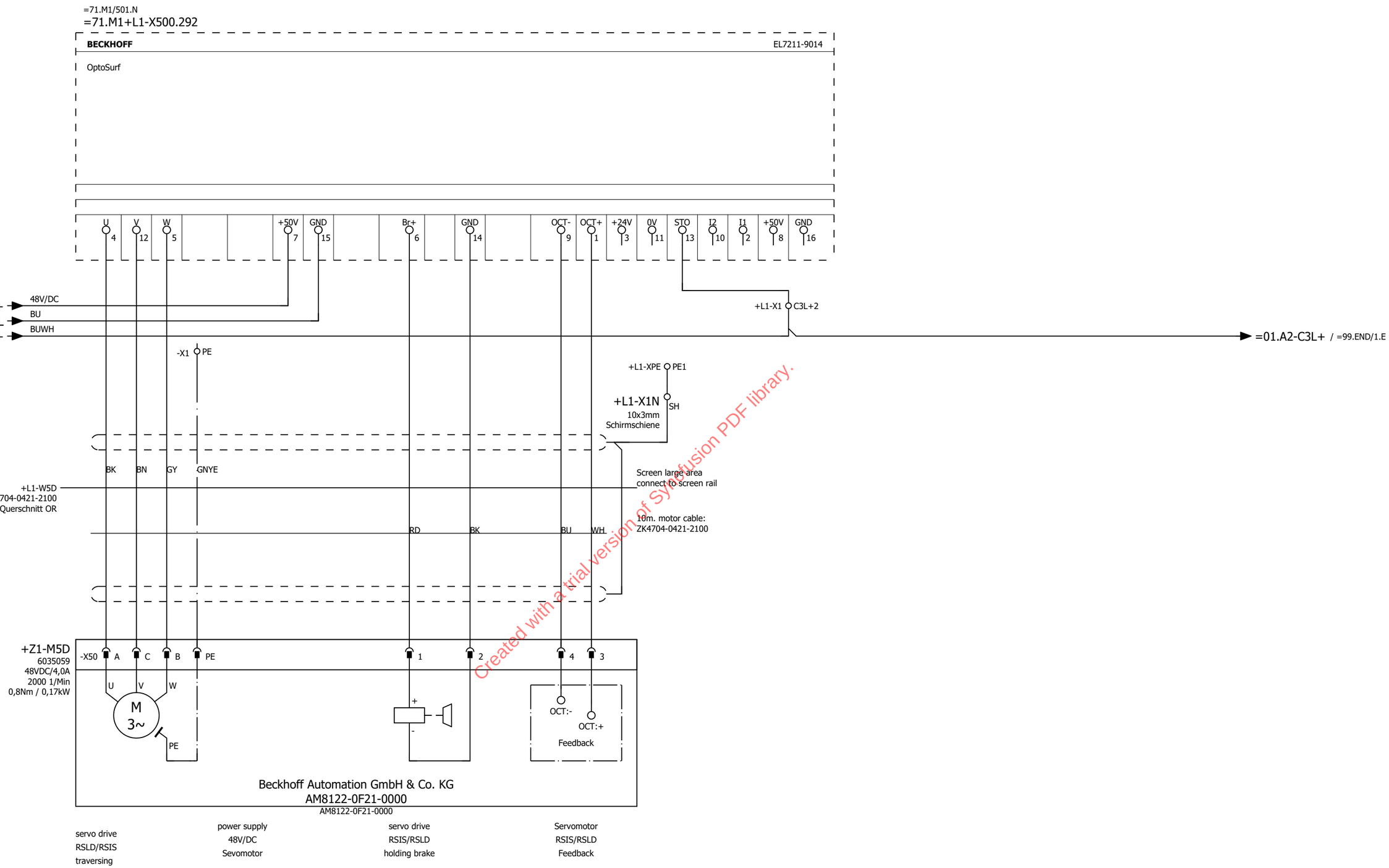
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	OptoSurf USB interfaces		= 91.S7 + E11	function page 3/20
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 228
change	date	name	norm		originally.	created for.	created by.				



Created with a trial version of Syncfusion PDF library.

3 5

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	voltage supply		= 91.S7	function page
			design.	PED						+ E11	4/20
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				229

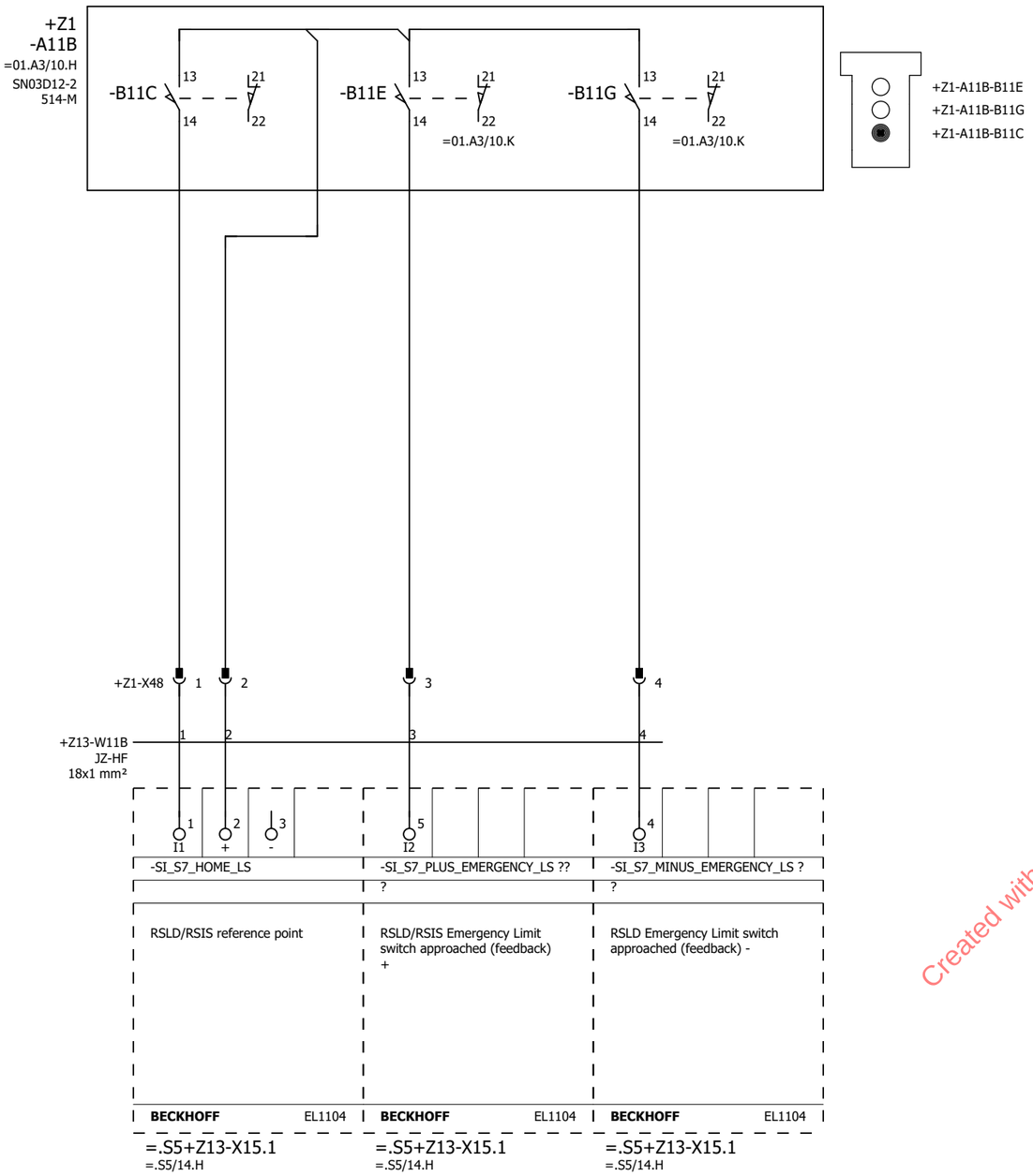


Created with a trial version of Syncfusion PDF library.

4

11

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	RSLD/RSIS adjustment		= 91.S7	function page
			design.	PED						+ Z1	5/20
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				230



reference point RSIS/RSLD

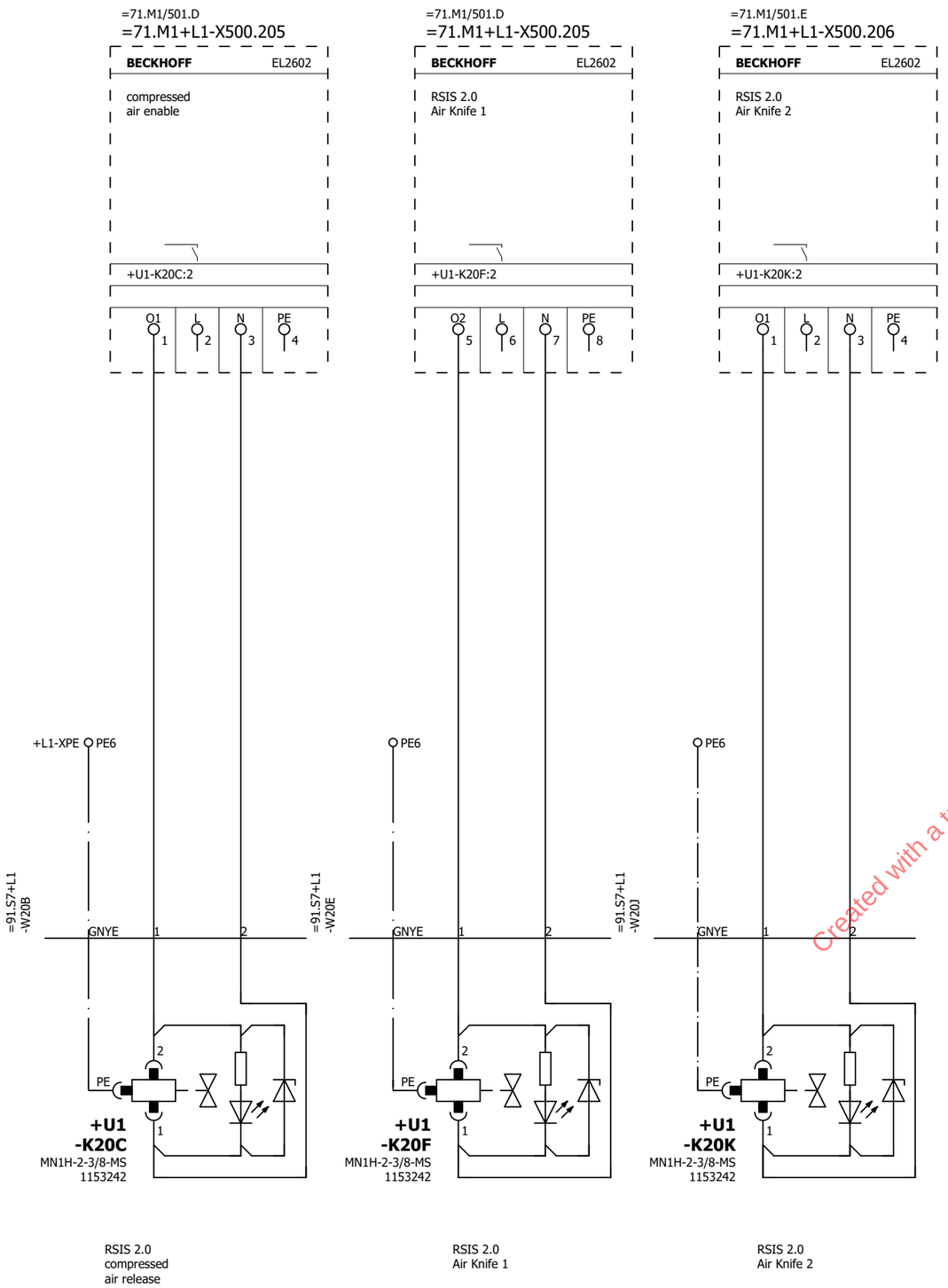
RSIS/RSLD emergency limit switch approached (remote indication) +

RSIS/RSLD emergency limit switch approached (remote indication) -

RSLD sensor at roll

Created with a trial version of Syncfusion PDF library.

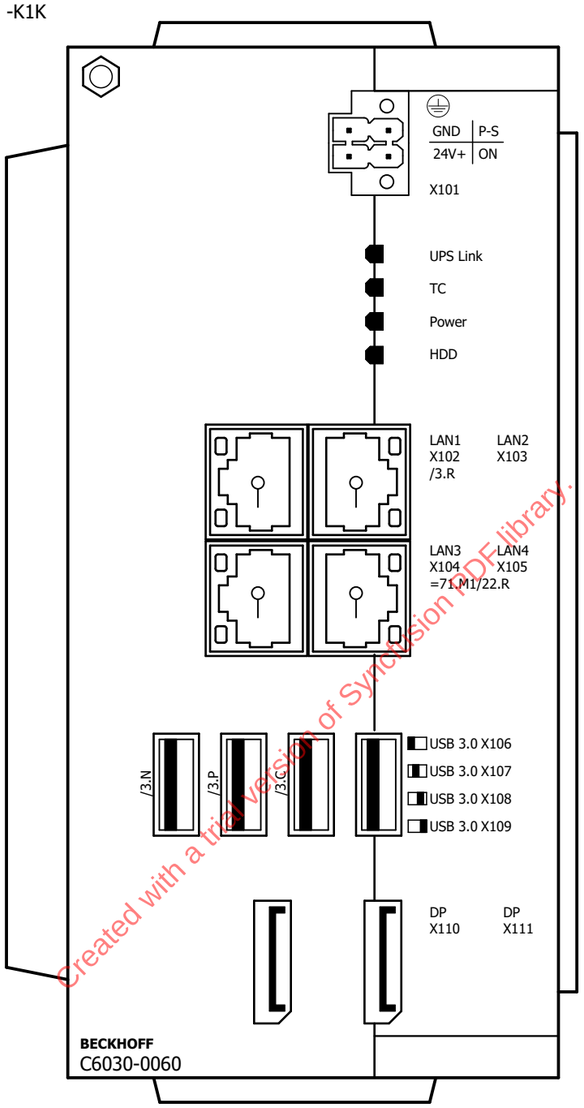
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	RSLD/RSIS adjustment I/O		= 91.S7 + Z1	function page 11/20
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 231
change	date	name	norm		originally.	created for.	created by.				



Created with a trial version of Syncfusion PDF library.

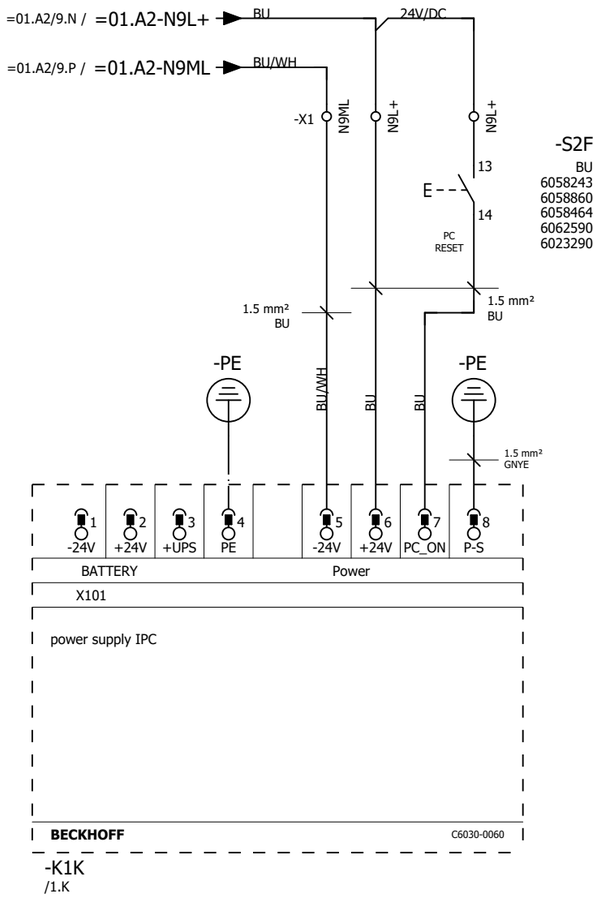
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	RSLD/RSIS adjustment I/O		= 91.S7 + Z1	function page 20/20
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 232
change	date	name	norm		originally.	created for.	created by.				

-K1K



Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	overview PC vibration measurement		= 91.S8	function page
			design.	PED						+ E2	1/4
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				233



Created with a trial version of Syncfusion PDF library.

1 3

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	PC vibration mesurement		= 91.S8	function page
			design.	PED						+ E2	2/4
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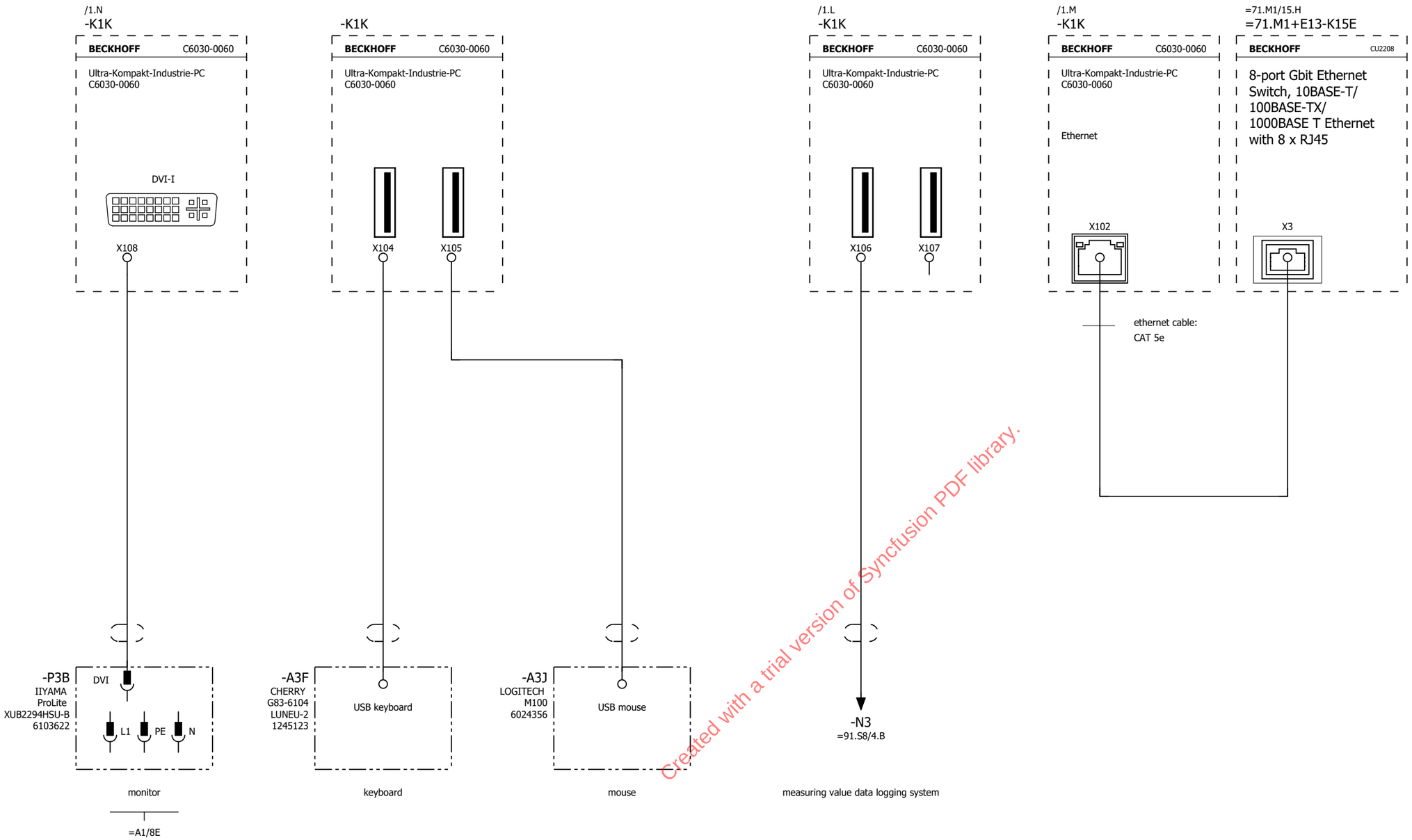
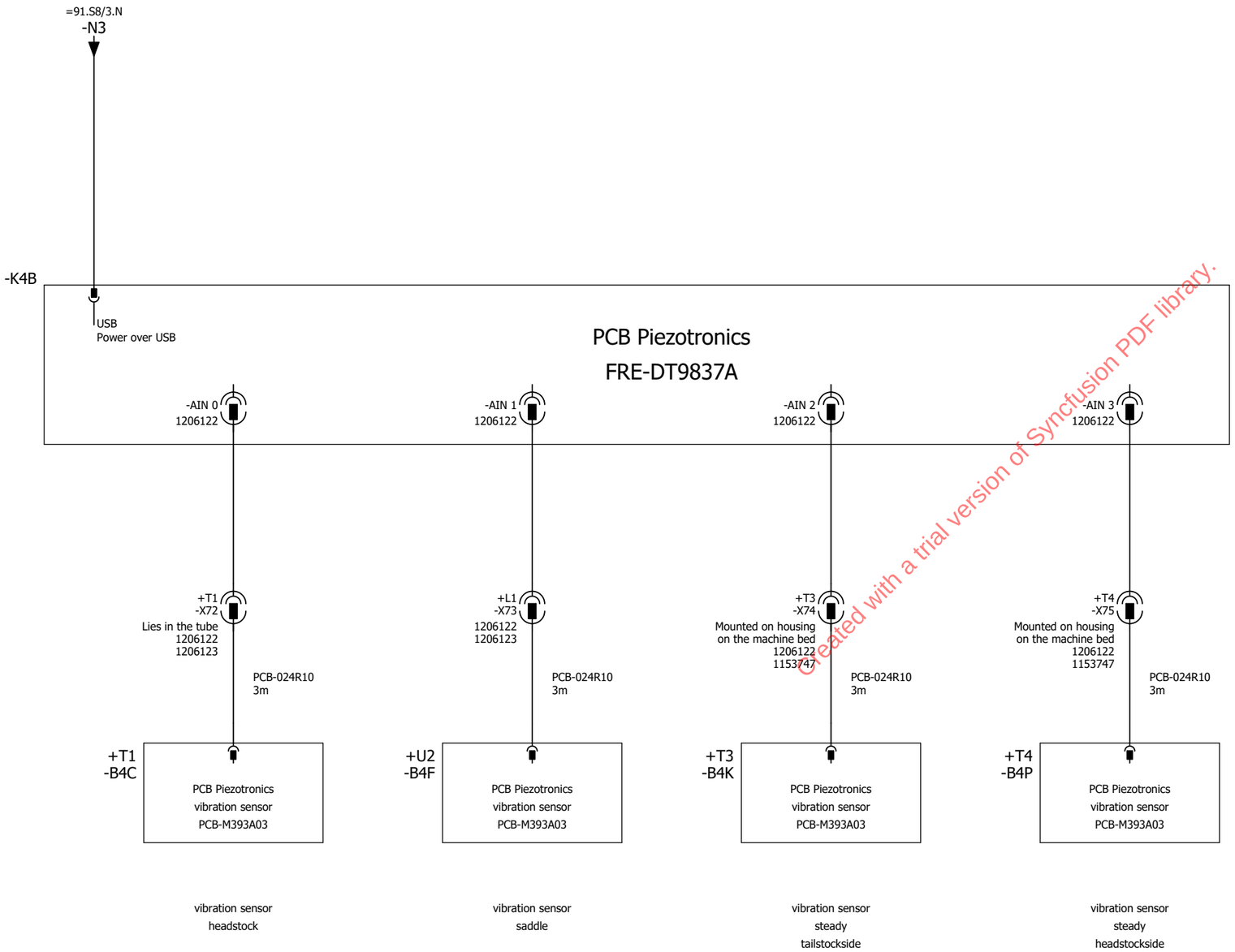
change	date	name	norm		originally.	created for.	created by.				234



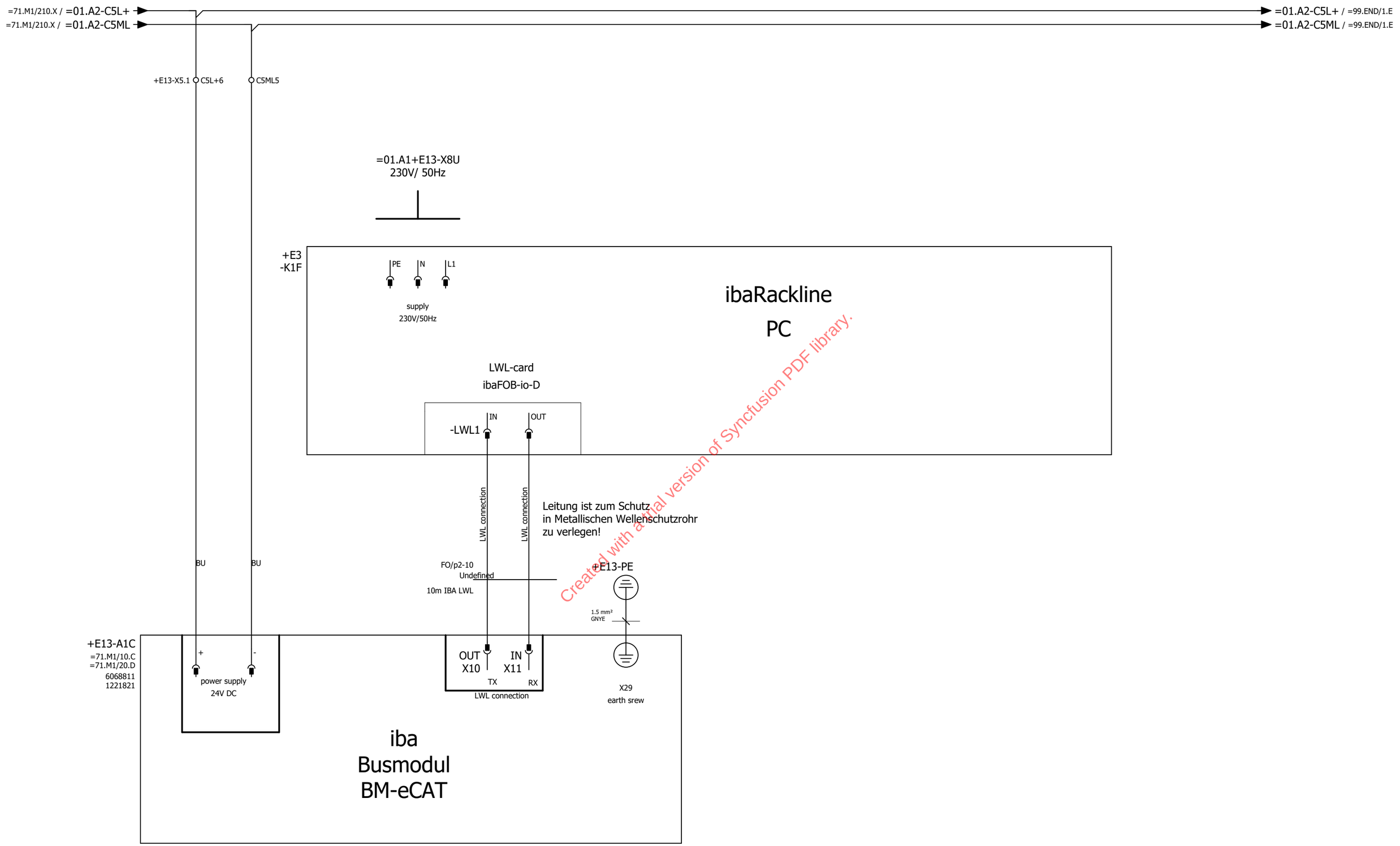
Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	PC vibration mesurement		= 91.S8	function page
			design.	PED						+ E2	3/4
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				235

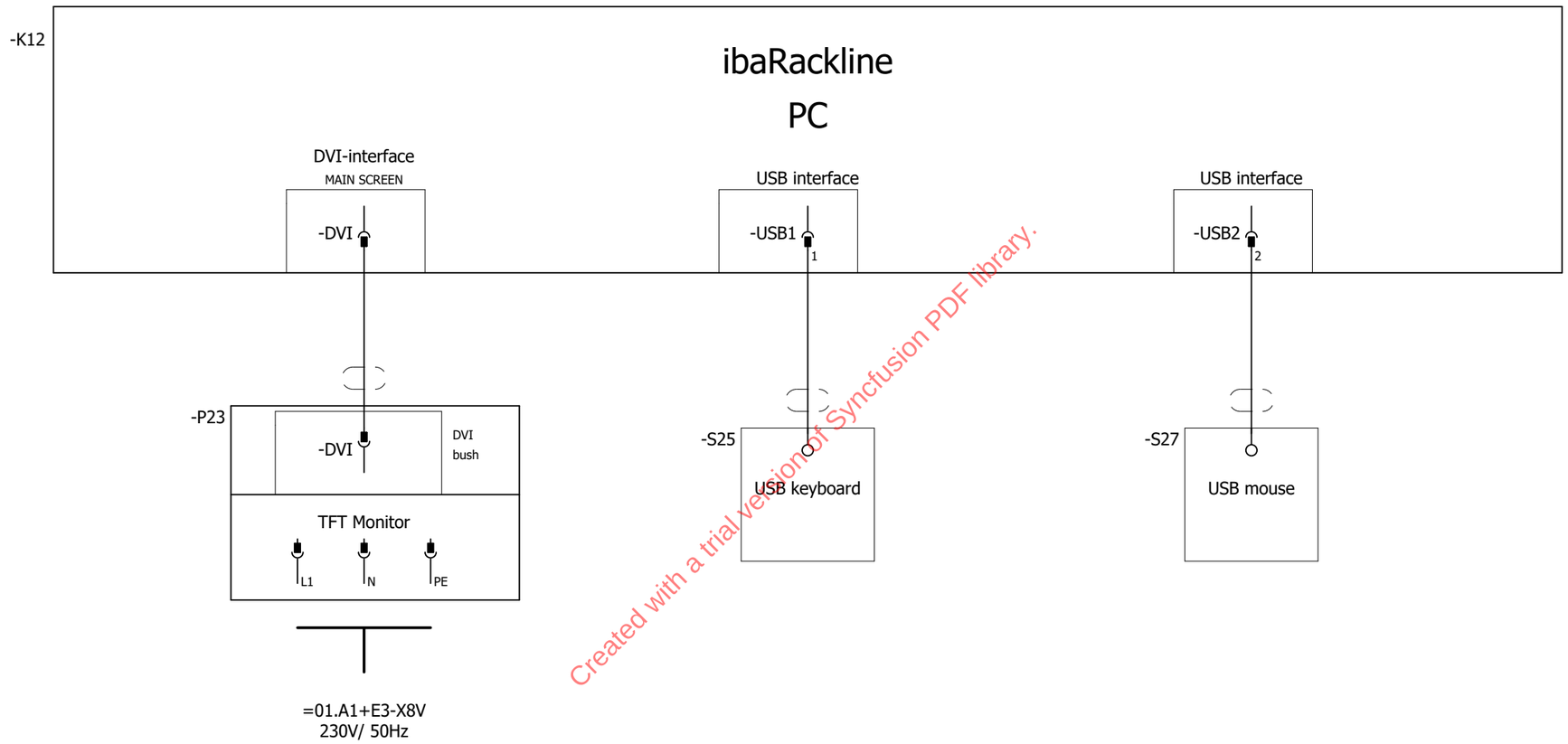


Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	vibration measurement		= 91.S8	function page
			design.	PED						+ E2	4/4
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				236



Created with a trial version of Syncfusion PDF library.



Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	iba		= 91.S9	function page
			design.	PED						+ E3	2/2
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				238

A B C D E F G H J K L M N P Q R S T U V W X Y Z

Schaltschrank
24V

102 =91.S7/4.X / =01.A2-C3L+
102 =91.S7/4.X / =01.A2-C3ML
352 =71.M1/360.X / =01.A2-C3L+
352 =71.M1/360.X / =01.A2-C3ML
502 =91.S7/5.X / =01.A2-C3L+
502 =91.S5/15.X / =01.A2-C3ML

602 =37.A17.1/1.X / =01.A2-C3L+
602 =37.A17.1/1.X / =01.A2-C3ML
702 =71.M1/710.X / =01.A2-C3L+
702 =71.M1/710.X / =01.A2-C3ML
801 =91.S1/810.X / =01.A2-C3L+
801 =91.S1/810.X / =01.A2-C3ML

101 =91.S9/1.X / =01.A2-C5L+
101 =91.S9/1.X / =01.A2-C5ML

102 =61.L3/1.K / =01.A2-C5L+

352 =47.Y28.1/10.X / =01.A2-C5L+
352 =47.Y28.1/10.X / =01.A2-C5ML

502 =91.S5/15.X / =01.A2-C5L+
502 =91.S5/15.X / =01.A2-C5ML

702 =61.L5/10.P / =01.A2-C5L+
702 =61.L5/10.P / =01.A2-C5ML

100 =01.A3/12.X / =01.A2-C4L+
100 =01.A3/12.X / =01.A2-C4ML

101 =01.A3/3.X / =01.A2-C4ML

100 =25.Z5.1/3.X / =01.A2-Q4L+
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100 =01.A2/9.X / =01.A2-K1L+
100 =01.A2/9.X / =01.A2-K1ML

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102 =71.M1/210.X / =01.A2-C8L+
102 =71.M1/210.X / =01.A2-C8ML

352 =71.M1/360.X / =01.A2-C8L+
352 =71.M1/360.X / =01.A2-C8ML

502 =91.S3/30.V / =01.A2-C8L+
502 =91.S1/1.X / =01.A2-C8ML

702 =25.Z5.2/21.X / =01.A2-C8L+
702 =25.Z5.2/21.X / =01.A2-C8ML

802 =28.C8.1/20.G / =01.A2-C8L+
802 =28.C8.1/2.L / =01.A2-C8ML

102 =71.M1/210.X / =01.A2-C6L+
102 =71.M1/210.X / =01.A2-C6ML

352 =71.M1/360.X / =01.A2-C6L+
352 =71.M1/360.X / =01.A2-C6ML

502 =91.S5/15.X / =01.A2-C6L+
502 =91.S5/15.X / =01.A2-C6ML

702 =71.M1/710.X / =01.A2-C6L+
702 =71.M1/710.X / =01.A2-C6ML

400V

=91.S3/5.X / =01.A1-X1L1
=91.S3/5.X / =01.A1-X1L2
=91.S3/5.X / =01.A1-X1L3

=01.A1/5.X / =01.A1-X1L01
=01.A1/5.X / =01.A1-X1L02
=01.A1/5.X / =01.A1-X1L03

=01.A2/2.X / =01.A2-J1L1
=01.A2/2.X / =01.A2-J1L2
=01.A2/2.X / =01.A2-J1L3

=21.C1.2/8.X / =01.A1-R1L1
=21.C1.2/8.X / =01.A1-R1L2
=21.C1.2/8.X / =01.A1-R1L3

230V

=61.L6/1.X / =01.A1-H3L
=61.L6/1.X / =01.A1-H3N

=01.A1/5.F / =01.A1-V3L
=01.A1/5.F / =01.A1-V3N

=21.C1.2/1.X / =01.A1-C2L
=21.C1.2/1.X / =01.A1-C2N

=61.L14/1.X / =01.A1-L2L
=61.L14/1.X / =01.A1-L2N

=01.A1/4.X / =01.A1-E3L
=01.A1/4.X / =01.A1-E3N

=01.A1/6.X / =01.A1-W3N

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=91.S9/2

=BESTELLUNG/1

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	potential end		= 99.END + E11	function page 1/1
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 239
change	date	name	norm		originally.	created for.	created by.				

Bestellung Zusatzkarten

Firma: Herkules

Liefertermin: 2022

M.-Type: WS 450 KL x 5000 CNC Monolith

Datum: 12.12.2021

Kom.Nr.: 98290

Steuerspannung: 230V/50Hz

Name: B.Pedde

Blatt: 1

Menge:	Benennung	Ident.Nr.	Verwendung
1	Auswuchteinrichtung 528KE	1175097	=61.L6+P9-A1L

Created with a trial version of Syncfusion PDF library.

=99.END/1

change	date	name	norm				
	2022-06-07	PED					

Terminal diagram

terminal connection diagram

+E2-X1

terminal strip switch cabinet +E2 vibration measurement

cable name	cable type	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	cable name	cable type	page/ path
				PE		PT2,5-PE	=01.A1-X8M	PE			=01.A1/8.N
				PE		PT2,5-PE	=01.A1-X8P	PE			=01.A1/8.Q
				PE		PT2,5-PE	=01.A1-X8R	PE			=01.A1/8.S
				PE		PT2,5-PE	-X10	PE1			=01.A1/31.X
		-X11	1	N9L+		PT2,5	=91.S8-K1K	X101:6			=91.S8/2.F
				N9L+		PT2,5	=91.S8-S2F	13			=91.S8/2.F
		-X11	2	N9ML		PT2,5	=91.S8-K1K	X101:5			=91.S8/2.E
		-X10	1	1		PT2,5	=01.A1-X8M	L1			=01.A1/8.M
				2		PT2,5	=01.A1-X8P	L1			=01.A1/8.P
				3		PT2,5	=01.A1-X8R	L1			=01.A1/8.S
		-X10	2	4		PT2,5	=01.A1-X8M	N			=01.A1/8.N
				5		PT2,5	=01.A1-X8P	N			=01.A1/8.Q
				6		PT2,5	=01.A1-X8R	N			=01.A1/8.S
						CLIPFIX35					
						D-ST2,5					

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=BESTELLUNG/1

2

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +E2-X1		= XK1	function page
			design.	PED					+ E2	1/50
			check.					98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.			241

Terminal diagram

terminal connection diagram

+E3-X1

terminal strip IBA

cable name	cable type	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	page/ path
		=01.A1-X8U	PE	PE		PT2,5-PE			=01.A1/8.V
		=01.A1-X8X	PE	PE		PT2,5-PE			=01.A1/8.Y
				PE		PT2,5-PE	-X20	PE1	=01.A1/31.Z
		=01.A1-X8U	L1	1		PT2,5	-X20	1	=01.A1/8.V
		=01.A1-X8X	L1	2		PT2,5			=01.A1/8.X
		=01.A1-X8U	N	3		PT2,5	-X20	2	=01.A1/8.W
		=01.A1-X8X	N	4		PT2,5			=01.A1/8.Y
						CLIPFIX35			
						D-ST2,5			

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Terminal diagram

terminal connection diagram

+E11-X1

=01.A1+W1-W1C	=91.S1+W1-W1D	cable name	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	page/ path
JZ-HF 5x1,5	JZ-HF 4x2,5	cable type								
			=01.A1-PE		PE	,	PT 6-PE			=01.A1/30.B
							D-PT 6			
			+S1-X50	PE1	PE	,	PT4-PE			=91.S1/1.U
							D-ST 4			
GNYE			=61.L11+Z7-M1D	PE	PE	,	PT2,5-PE			=61.L11/1.E
							D-ST2,5			
					1	,	PT2,5	=71.M1-X50.879	1	=61.L1/20.J
					2	,	PT2,5	=71.M1-X50.879	2	=61.L1/20.K
					3	,	PT2,5	=71.M1-X50.879	5	=61.L1/20.M
					4	,	PT2,5	=71.M1-X50.879	6	=61.L1/20.N
					5	,	PT2,5	=71.M1-X50.880	1	=61.L1/20.Q
					6	,	PT2,5	=71.M1-X50.880	2	=61.L1/20.Q
			+S1-X50	1	7	,	PT2,5	=01.A1-F3P	2	=91.S1/1.S
			+S1-X50	2	8	,	PT2,5	-X4	L2N:b	=91.S1/1.T
	1		=61.L11+Z7-F1D	1	9	,	PT2,5	=61.L11+E12-Q1D	2/T1	=61.L11/1.D
	2		=61.L11+Z7-F1D	3	10	,	PT2,5	=61.L11+E12-Q1D	4/T2	=61.L11/1.D
	3		=61.L11+Z7-F1D	5	11	,	PT2,5	=61.L11+E12-Q1D	6/T3	=61.L11/1.E
							D-ST2,5			
							CLIPFIX35			

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +E11-X1		= XK1	function page 3/50
			design.	PED					+ E11	
			check.					98290 WS450 KL x 5500 CNC Monolith	2953	page 243
change	date	name	norm		originally.	created for.	created by.			

Terminal diagram

terminal connection diagram

+E11-X4

cable name	cable type	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	page/ path
		=01.A1-PE		PE		PT 6-PE			=01.A1/30.F
				PE		PT2,5-PE			=01.A1/7.K
						D-ST2,5			
		-XPE	PE	C2N		PT2,5	=01.A1-T2C	OUT:9	=01.A1/2.D
		+E13-X2	E1N:b	C2N		PT2,5			=01.A1/3.E
		=01.A1+E13-K5D	A2	C2N		PT2,5			=01.A1/3.V
		+E13-X2	W3N:b	C2N		PT2,5			=01.A1/3.W
		=01.A1-X7C	N	C2N		PT2,5			=01.A1/7.D
		=01.A1+E13-X7F	N	C2N		PT2,5			=01.A1/7.G
				C2N		PT2,5			=01.A1/7.K
		-X40	2	C2N		PT2,5			=01.A1/7.Q
		-X40	23	C2N		PT2,5			=01.A1/8.F
		=21.C1.2+E12-T1B-X36	N	C2N		PT2,5			=21.C1.2/1.S
						D-ST2,5			
		=01.A1-X7C	L1	C7L		PT2,5	=01.A1-F7C	2	=01.A1/7.C
		=01.A1+E13-X7F	L1	C7L		PT2,5			=01.A1/7.F
				C7L		PT2,5			=01.A1/7.J
						D-ST2,5			
		-XPE	PE	L2N		PT2,5	=01.A1-T2L	OUT:9	=01.A1/2.L
		=11.H0+E12-Q6E	A2	L2N		PT2,5			=01.A1/3.H
		-X1	8:a	L2N		PT2,5			=01.A1/3.P
		-X40	4	L2N		PT2,5			=01.A1/7.T
		=01.A1+E13-X7V	N	L2N		PT2,5			=01.A1/7.W
		-X40	25	L2N		PT2,5			=01.A1/8.J
		-X10	2	L2N		PT2,5			=01.A1/8.N
		-X20	2	L2N		PT2,5			=01.A1/8.W
		=21.X1.1+E13-K4C	A2	L2N		PT2,5			=21.X1.1/4.C
		=61.L14-Q1U	5/L3	L2N		PT2,5			=61.L14/1.E
						D-ST2,5			
						CLIPFIX35			

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Terminal diagram

terminal connection diagram

+E11-X9

cable name	cable type	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	cable type	cable name	page/ path
		=01.A1-PE		PE	,	PT 6-PE					=01.A1/30.Q
						D-PT 6					
		=01.A1-Q1C	12.1	1	,	PT2,5	+E13-X5.1	C3L+3:c			=01.A3/2.E
		=01.A1-Q1C	12.2	2	,	PT2,5	=01.A3+E12-K2E	21			=01.A3/2.E
		=01.A1-Q1C	D1	3	,	PT2,5	=01.A3+E12-K2S	A1			=01.A3/2.U
		+E13-X5.1	C4ML1:b	4	,	PT2,5	=01.A1-Q1C	D2			=01.A3/2.U
		=01.A1-Q1C	14.1	5	,	PT2,5	=71.M1-X50.9	6			=71.M1/70.C
		=01.A1-Q1C	14.4	6	,	PT2,5	=71.M1-X50.9	4			=71.M1/70.C
						CLIPFIX35					
						D-ST2,5					

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +E11-X9	= XK1 + E11	function page 5/50
			design.	PED					
			check.					98290 WS450 KL x 5500 CNC Monolith	2953
change	date	name	norm		originally.	created for.	created by.		page 245

Terminal diagram

terminal connection diagram

+E11-XPE

cable name	cable type	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	cable name	cable type	page/ path
=01.A1+W1-W30X	H07V-K 1x16										
=01.A1+W1-W30S	H07V-K 1x16										
=01.A1+W1-W30L	H07V-K / (H)07 V-K 1x70,0										
=01.A1+W1-W30V	H07V-K 1x16										
=01.A1+W1-W30N	H07V-K / (H)07 V-K 1x70,0										
		-X4	C2N:b	PE							=01.A1/2.D
		=11.H0+E12-K3C	PE	PE	,						=11.H0/3.E
		=11.H0+E12-R3C	PE	PE	,						=11.H0/3.E
		-X4	L2N:b	PE							=01.A1/2.L
		=21.C1.2+E12-R1C	PE	PE	,						=21.C1.2/1.E
		=21.C1.2+E12-K1C	PE	PE	,						=21.C1.2/1.E
		=21.C1.2+E12-T1B	PE	PE	,						=21.C1.2/1.F
		+E13-X5	C1ML:b	PE							=01.A2/1.E
		+E13-X5	C1ML:b	PE							=01.A2/1.E
		+E13-X5	K1ML:a	PE							=01.A2/1.N
		+E13-X5	K1ML:a	PE							=01.A2/1.P
		+E13-X5	K1ML:a	PE							=01.A2/1.P
		+E13-X5	C2ML:a	PE							=01.A2/2.F
				PE	,						=01.A1/30.B
				PE	,						=01.A1/30.D
				PE	,						=01.A1/30.F
	GNYE			PE	,						=01.A1/30.N
				PE	,		-X9				=01.A1/30.T
				PE	,		-X9				=01.A1/30.U
	GNYE	+X1-X0	PE:a	PE	,		-X9				=01.A1/30.V
	GNYE			PE	,						=01.A1/30.L
		=01.A1+E2-X1	PE	PE	,						=01.A1/30.Q
	GNYE	=01.A1+E3-X1	PE	PE	,						=01.A1/30.S
GNYE		+X12-X1	PE:a	PE	,						=01.A1/30.X

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Terminal diagram

terminal connection diagram

+E12-X1.1

=21.C1.2+W1-W2E TOPSERV 109 4x25	=21.C1.2+W1-W2B TOPSERV 109 4x25	cable name / cable type	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	page/ path
	GNYE		+S1-X20	PE	PE	,	USLKG 95			=21.C1.2/2.D
GNYE			+S1-X21	PE	PE	,	USLKG 95	=21.C1.2-T1B	PE	=21.C1.2/2.F
	U		+S1-X20	U	U	•	UKH95			=21.C1.2/2.B
							EB2-25/UHK			
U			+S1-X21	U	U	•	UKH95	=21.C1.2-T1B	1U2	=21.C1.2/2.E
	V		+S1-X20	V	V	•	UKH95			=21.C1.2/2.C
							EB2-25/UHK			
V			+S1-X21	V	V	•	UKH95	=21.C1.2-T1B	1V2	=21.C1.2/2.F
	W		+S1-X20	W	W	•	UKH95			=21.C1.2/2.C
							EB2-25/UHK			
W			+S1-X21	W	W	•	UKH95	=21.C1.2-T1B	1W2	=21.C1.2/2.F

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Terminal diagram

terminal connection diagram

+E13-X2

cable type	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	cable type	page/ path
	=01.A1+E11-PE		PE		PT 6-PE				=01.A1/30.D
					CLIPFIX35				
			PE		PT 6-PE				=4+E1 (+E1 Schaltschrank.E1
					D-PT 6				
	=01.A1+E12-E5H	X1:PE	PE		PT2,5-PE				=01.A1/5.K
			PE		PT2,5-PE	=01.A1+E11-M6F	PE		=01.A1/6.E
			PE		PT2,5-PE	=01.A1+E12-M6J	PE		=01.A1/6.J
			1		PT2,5	=01.A1+E11-B4D	22		=01.A1/4.D
	=01.A1+E11-E4D	X1	2		PT2,5				=01.A1/4.D
			3		PT2,5	=01.A1+E12-B4F	22		=01.A1/4.F
	=01.A1+E12-E4F	X1	4		PT2,5				=01.A1/4.F
			5		PT2,5	=01.A1-B4H	22		=01.A1/4.J
	=01.A1-E4H	X1	6		PT2,5				=01.A1/4.J
	=21.Z1.1+E12-T1G-X1	13	7		PT2,5				=21.Z1.1/4.W
	=21.Z1.1+E12-T1G-X1	10	8		PT2,5	=71.M1-X200.228	5		=21.Z1.1/4.U
			9		PT2,5	=01.A1+E11-B4D	14		=01.A1/5.D
	=01.A1+E12-B4F	13	10		PT2,5				=01.A1/5.D
			11		PT2,5	=01.A1+E12-B4F	14		=01.A1/5.D
	=01.A1-B4H	13	12		PT2,5				=01.A1/5.D
	=01.A1-K5D	A1	13		PT2,5	=01.A1-B4H	14		=01.A1/5.D
	=01.A1+E12-E5H	X1:L1	16		PT2,5	=01.A1+E11-Q5J	2/T1		=01.A1/5.J
	=01.A1+E12-E5H	X1:L2	17		PT2,5	=01.A1+E11-Q5J	4/T2		=01.A1/5.J
	=01.A1+E12-E5H	X1:L3	18		PT2,5	=01.A1+E11-Q5J	6/T3		=01.A1/5.K
	=01.A1+E11-F7V	13	19		PT2,5	=01.A1+E12-E5H	X2:1		=01.A1/5.J
	=71.M1+E11-X50.9	5	20		PT2,5	=01.A1+E12-E5H	X2:3		=01.A1/5.K
	=01.A1-K5D	21	22		PT2,5	=01.A1+E12-E5H	X2:5		=01.A1/5.K
	=01.A1-K5D	22	23		PT2,5	=01.A1+E12-E5H	X2:6		=01.A1/5.L
	=01.A3+E11-S1D	13	24		PT2,5	=71.M1+E11-X50.27	2		=01.A3/20.B
	=01.A3+E11-S1D	14	25		PT2,5	=71.M1+E11-X50.27	1		=01.A3/20.B
	=01.A2+E11-P10C	X1	31		PT2,5	=01.A2-K10Q	12		=01.A2/10.D
	-X5	C2ML:a	32		PT2,5	=01.A2+E11-P10C	X2		=01.A2/10.D
	=01.A3+E11-S1D	11	33		PT2,5	=01.A3-K2B-X1	21		=01.A3/1.D
	-X65	5	34		PT2,5	=01.A3+E11-S1D	12		=01.A3/1.D
	=01.A3+E11-S1D	21	35		PT2,5	=01.A3-K2B-X1	22		=01.A3/1.E
	-X65	7	36		PT2,5	=01.A3+E11-S1D	22		=01.A3/1.E

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Terminal diagram

terminal connection diagram

+E13-X2

cable name	cable type	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	page/ path
		=01.A1+E11-F3E	2	E1L		PT2,5			=01.A1/3.E
		=01.A1+E11-B4D	21	E1L		PT2,5			=01.A1/4.D
		=01.A1+E12-B4F	21	E1L		PT2,5			=01.A1/4.F
		=01.A1-B4H	21	E1L		PT2,5			=01.A1/4.J
						D-ST2,5			
		+E11-X4	C2N:b	E1N		PT2,5			=01.A1/3.E
				E1N		PT2,5	=01.A1+E11-E4D	X2	=01.A1/4.D
				E1N		PT2,5	=01.A1+E12-E4F	X2	=01.A1/4.F
				E1N		PT2,5	=01.A1-E4H	X2	=01.A1/4.J
						D-ST2,5			
		=01.A1+E11-M6F	L1	G6N		PT2,5	=01.A1-K5D	14	=01.A1/6.G
		=01.A1+E12-M6J	L1	G6N		PT2,5			=01.A1/6.K
		=01.A1+E11-B4D	13	V3L		PT2,5	=01.A1+E11-F3V	2	=01.A1/5.D
						D-ST2,5			
		+E11-X4	C2N:b	W3N		PT2,5			=01.A1/3.W
				W3N		PT2,5	=01.A1+E11-M6F	N	=01.A1/6.G
				W3N		PT2,5	=01.A1+E12-M6J	N	=01.A1/6.K

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +E13-X2	= XK1 + E13	function page 9/50
			design.	PED					
			check.					98290 WS450 KL x 5500 CNC Monolith	page 249
change	date	name	norm		originally.	created for.	created by.	2953	

Terminal diagram

terminal connection diagram

+E13-X2.1

cable name	cable type	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	cable name	cable type	page/ path
		=01.A3-K2B-X1	5	1		PT2,5	-X86	22			=01.A3/2.P
		=01.A3-K2B-X1	6	2		PT2,5	-X45	C02			=01.A3/2.Q
		-X5.1	C4L+2:a	3		PT2,5	=01.A3-K2B-X1	13			=01.A3/3.S
				4		PT2,5	=01.A3-K2B-X1	14			=01.A3/3.T
		=01.A3-K2B-X1	33	6		PT2,5					=01.A3/4.D
		=01.A3-K2B-X1	34	7		PT2,5					=01.A3/4.E
		=01.A3-K2B-X1	35	8		PT2,5					=01.A3/4.G
		=01.A3-K2B-X1	36	9		PT2,5					=01.A3/4.H
		=01.A3-K2B-X1	37	10		PT2,5					=01.A3/4.J
		=01.A3-K2B-X1	38	11		PT2,5					=01.A3/4.L
		=01.A3-K2B-X1	39	12		PT2,5					=01.A3/4.M
						D-ST2,5					
		-X5.1	C4L+2:b	H4L+		PT2,5					=01.A3/4.D
				H4L+		PT2,5					=01.A3/4.D
				H4L+		PT2,5					=01.A3/4.E
				H4L+		PT2,5					=01.A3/4.G
				H4L+		PT2,5					=01.A3/4.H
				H4L+		PT2,5					=01.A3/4.J
				H4L+		PT2,5					=01.A3/4.L
				H4L+		PT2,5					=01.A3/4.M
						CLIPFIX35					
						D-ST2,5					

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +E13-X2.1	= XK1 + E13	function page 10/50
			design.	PED					
			check.				98290 WS450 KL x 5500 CNC Monolith	2953	page 250
change	date	name	norm		originally.	created for.	created by.		

Terminal diagram

terminal connection diagram

+E13-X5

cable type	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	cable type	page/ path
	=01.A1+E11-PE		PE		PT 6-PE				=01.A1/30.J
	+E11-XPE	PE	C1ML		PT4	=01.A2-T1C	-		=01.A2/1.E
	=01.A2-F4C	0V	C1ML		PT2,5				=01.A2/4.D
	-X5.1	C4ML1:a	C1ML		PT2,5				=01.A2/4.E
	-X5.1	H4ML1:a	C1ML		PT2,5				=01.A2/4.K
	-X5.1	Q4ML1:a	C1ML		PT2,5				=01.A2/4.Q
			C1ML		PT2,5	-X5.1	C5ML1:a		=01.A2/5.G
			C1ML		PT2,5	-X5.1	C6ML1:a		=01.A2/6.G
	-X45	A16	C1ML		PT2,5				=01.A2/7.F
	+E11-XPE	PE	C1ML		PT4	=01.A2-T1C	-'		=01.A2/1.E
					D-ST 4				
			C2ML		PT2,5	=01.A2-T2C	-"		=01.A2/2.F
			C2ML		PT2,5	+E11-XPE	PE		=01.A2/2.F
			C2ML		PT2,5	=01.A2-F10C	0V		=01.A2/2.F
			C2ML		PT2,5	=01.A2-F8C	0V		=01.A2/2.G
			C2ML		PT2,5	-X5.1	C8ML1:a		=01.A2/8.F
			C2ML		PT2,5	-X2	32:b		=01.A2/10.D
					D-ST2,5				
			K1ML		PT2,5	-X45	B06		=01.A2/9.V
	-X11	2	K1ML		PT2,5				=01.A2/9.P
			K1ML		PT2,5	-X65	2		=01.A2/9.F
						-X65	4		
	-X5.1	U4ML1:a	K1ML		PT2,5				=01.A2/4.W
			K1ML		PT2,5	-X5.1	C3ML1:a		=01.A2/3.G
			K1ML		PT2,5	=01.A2-F3C	0V		=01.A2/3.D
			K1ML		PT2,5	+E11-XPE	PE		=01.A2/1.P
	=01.A2-T1L.1	Output DC 24V:2.2	K1ML		PT2,5	+E11-XPE	PE		=01.A2/1.N
					CLIPFIX35				
					D-ST2,5				

Created with a trial version of Symbfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +E13-X5	= XK1	function page 11/50
			design.	PED				+ E13	
			check.				98290 WS450 KL x 5500 CNC Monolith	2953	page 251
change	date	name	norm		originally. created for.	created by.			

Terminal diagram

terminal connection diagram

+E13-X5.1

cable name	cable type	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	page/ path
		=01.A1+E11-PE		PE		PT 6-PE			=01.A1/30.L
						D-ST2,5			
		-X81	A01	C3L+1		PT2,5-QUATTRO	=01.A2-F3C	LOAD+	=01.A2/3.D
		-X81	A03						
		-X45	A03	C3L+2		PT2,5-QUATTRO	-X45	A01	=01.A2/3.J
		-X86	1						
		-X8	13:1	C3L+3		PT2,5-QUATTRO	-X86	3	=01.A2/3.L
		+E11-X9	1:a				=01.A3-S2U	21	
				C3L+5		PT2,5-QUATTRO	=01.A3-K5B-X1	9	=01.A3/5.C
		=21.X1.1+E12-T1G-X200	1	C3L+6		PT2,5-QUATTRO			=01.A3/5.L
		=71.M1-X200.230	2	C3L+7		PT2,5-QUATTRO	=21.X1.1+E12-T1G-X2	11	=21.X1.1/3.H
		=21.X1.1-K4M	11						
		=01.A3-K3J	13						
		=71.M1-X200.229	2	C3L+8		PT2,5-QUATTRO	=01.A3-K3J	43	=21.X1.1/3.T
		=71.M1-X200.230	6						
		=71.M1-K15B	X40:1	C3L+9		PT2,5-QUATTRO	-X45	C10	=21.X1.1/4.M
		=71.M1-K4G	X10:3						
		=71.M1-K15K	X40:1						
		=71.M1+E11-X50.0	1	C3L+10		PT2,5-QUATTRO	=71.M1-K4L	X40:1	=71.M1/12.D
		=71.M1+E11-X50.100	1						
		=71.M1+E11-X50.516	1	C3L+11		PT2,5-QUATTRO	=71.M1+E11-X50.325	1	=71.M1/61.D
		=71.M1+E11-X50.850	1						
		=71.M1-X200.220	1	C3L+12		PT2,5-QUATTRO	=71.M1-X200.0	1	=71.M1/210.E
		=71.M1-X200.393	2						
		=91.S7-K2G	X10:3	C3L+13		PT2,5-QUATTRO	=91.S5-K4L	X40:1	=91.S5/5.V
						D-PT 6			
		-X81	A02	C3ML1		PT2,5-QUATTRO	-X5	K1ML:a	=01.A2/3.G
		-X81	A04						
		-X45	A04	C3ML2		PT2,5-QUATTRO	-X45	A02	=01.A2/3.J
		-X86	2						
		-X8	18:1	C3ML3		PT2,5-QUATTRO	-X86	4	=01.A2/3.L
		=01.A3-K2B-X1	18						
		=21.X1.1+E12-T1G-X200	2	C3ML4		PT2,5-QUATTRO	=21.C1.2-K4F	A2	=21.C1.2/4.F
		=21.X1.1+E12-T1G-X2	12						
		=21.X1.1+E12-T1G-X1	3	C3ML5		PT2,5-QUATTRO	=01.A3-K3J	33	=21.X1.1/3.Q

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +E13-X5.1	= XK1	function page 12/50
			design.	PED				+ E13	
			check.				98290 WS450 KL x 5500 CNC Monolith	2953	page 252
change	date	name	norm		originally. created for.	created by.			

Terminal diagram

terminal connection diagram

+E13-X5.1

cable name	cable type	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	page/ path
		=21.X1.1+E12-T1G-X1	6						
		=71.M1-K15B	X40:2	C3ML6		PT2,5-QUATTRO	=21.X1.1-K4M	A2	=21.X1.1/4.M
		=71.M1-K4G	X10:2						
		=71.M1-K15K	X40:2						
		=71.M1+E11-X50.0	5	C3ML7		PT2,5-QUATTRO	=71.M1-K4L	X40:2	=71.M1/12.E
		=71.M1+E11-X50.100	5						
		=71.M1+E11-X50.516	5	C3ML8		PT2,5-QUATTRO	=71.M1+E11-X50.325	5	=71.M1/61.E
		=71.M1+E11-X50.850	5						
		=71.M1-X200.220	5	C3ML9		PT2,5-QUATTRO	=71.M1-X200.0	5	=71.M1/210.E
		=71.M1-X200.393	3						
		=91.S7-K2G	X10:2	C3ML10		PT2,5-QUATTRO	=91.S5-K4L	X40:2	=91.S5/5.V
						D-ST2,5-QUATTRO			
		=01.A3-K2B-X1	29	C4L+1		PT2,5-QUATTRO	=01.A2-F4C	LOAD+	=01.A2/4.D
		=01.A3-K3E	61						
		-X2.1	H4L+:b	C4L+2		PT2,5-QUATTRO	-X2.1	3:b	=01.A3/3.S
		-X81	B05	C4L+3		PT2,5-QUATTRO	-X45	C03	=01.A3/11.D
		=01.A3-K10E	A1						
		-X45	C01	C4L+4		PT2,5-QUATTRO	-X45	B15	=01.A3/10.D
						D-ST2,5-QUATTRO			
		-X5	C1ML:b	C4ML1		PT2,5-QUATTRO			=01.A2/4.E
		+E11-X9	4:a						
		-X45	C07						
		-X81	B09	C4ML2		PT2,5-QUATTRO			=01.A3/12.Q
		=01.A3-K10E	A2						
		=01.A3+E11-Q8H	A2						
		=01.A3+E12-K2E	A2	C4ML3		PT2,5-QUATTRO			=01.A3/2.F
		=01.A3+E12-K2S	A2						
		=01.A3-K3E	A2						
		=01.A3-K3J	A2	C4ML4		PT2,5-QUATTRO			=01.A3/3.J
		=01.A3-K3M	A2			D-ST2,5-QUATTRO			
		=01.A3-K3P	A2						
		-X81	A05	C5L+1		PT2,5-QUATTRO	=01.A2-F5C	LOAD+	=01.A2/5.D
		-X45	A05	C5L+2		PT2,5-QUATTRO	-X81	A07	=01.A2/5.G
		-X45	A07						
		-X45	A09						

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +E13-X5.1	= XK1 + E13	function page 13/50
			design.	PED					
			check.					98290 WS450 KL x 5500 CNC Monolith	2953
change	date	name	norm		originally.	created for.	created by.		page 253

Terminal diagram

terminal connection diagram

+E13-X5.1

cable name	cable type	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	cable name	cable type	page/ path
		-X86	7	C5L+3		PT2,5-QUATTRO	-X86	5			=01.A2/5.L
		=01.A1+E11-R1L	11								
		=01.A3+E12-K2S	31	C5L+4		PT2,5-QUATTRO	=01.A1+E11-Q1C	5'			=01.A1/9.D
		=71.M1+E11-K80C	61								
		=71.M1+E11-X50.100	2	C5L+5		PT2,5-QUATTRO	=71.M1+E11-X50.0	2			=71.M1/60.F
		=71.M1-X200.0	2	C5L+6		PT2,5-QUATTRO	=71.M1+E11-X50.325	2			=71.M1/61.F
		=91.S9-A1C	+			D-ST2,5-QUATTRO					
		-X81	A06	C5ML1		PT2,5-QUATTRO	-X5	C1ML:a			=01.A2/5.G
		-X81	A08								
		-X45	A08	C5ML2		PT2,5-QUATTRO	-X45	A06			=01.A2/5.J
		-X86	6								
		-X45	A10								
		=01.A1+E11-Q1C	7'	C5ML3		PT2,5-QUATTRO	-X86	8			=01.A2/5.M
		=71.M1+E11-X50.100	3	C5ML4		PT2,5-QUATTRO	=71.M1+E11-X50.0	3			=71.M1/60.F
		=71.M1+E11-X50.325	3								
		=71.M1-X200.0	3	C5ML5		PT2,5-QUATTRO					=71.M1/210.F
		=91.S9-A1C	-			D-ST2,5-QUATTRO					
		-X81	A09	C6L+1		PT2,5-QUATTRO	=01.A3+E12-K2E	2/T1			=01.A2/6.D
		-X45	A11	C6L+2		PT2,5-QUATTRO	-X81	A11			=01.A2/6.G
		-X45	A13								
		-X86	11	C6L+3		PT2,5-QUATTRO	-X86	9			=01.A2/6.L
		=71.M1+E11-X50.516	2								
				C6L+4		PT2,5-QUATTRO	=71.M1-X200.220	2			=71.M1/210.L
						D-ST2,5-QUATTRO					
		-X81	A10	C6ML1		PT2,5-QUATTRO	-X5	C1ML:a			=01.A2/6.G
		-X81	A12								
		-X45	A14	C6ML2		PT2,5-QUATTRO	-X45	A12			=01.A2/6.J
		-X86	10								
		=71.M1+E11-X50.516	3	C6ML3		PT2,5-QUATTRO	-X86	12			=01.A2/6.L
		=71.M1-X200.220	3			D-ST2,5-QUATTRO					
		-X81	A13	C8L+1		PT2,5-QUATTRO	=01.A3+E12-K2E	4/T2			=01.A2/8.D
		-X81	A15								
		-X45	B03	C8L+2		PT2,5-QUATTRO	-X45	B01			=01.A2/8.H
		-X86	13								
		=71.M1+E11-X50.850	2	C8L+3		PT2,5-QUATTRO	-X86	15			=01.A2/8.L

Created with a trial version of Syncfusion PDF Library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +E13-X5.1		= XK1	function page 14/50
			design.	PED					+ E13	
			check.					98290 WS450 KL x 5500 CNC Monolith	2953	page 254
change	date	name	norm		originally.	created for.	created by.			

Terminal diagram

terminal connection diagram

+E13-X5.1

cable name	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	page/ path
	=25.Z5.1+E12-T1G-X206	1			D-ST2,5-QUATTRO			
	=25.Z5.1+E12-T1G-X206	3						
	-X81	A14	C8ML1		PT2,5-QUATTRO	-X5	C2ML:a	=01.A2/8.F
	-X81	A16						
	-X45	B04	C8ML2		PT2,5-QUATTRO	-X45	B02	=01.A2/8.H
	-X86	14						
	=71.M1+E11-X50.850	3	C8ML3		PT2,5-QUATTRO	-X86	16	=01.A2/8.L
	=25.Z5.1+E12-T1G-X206	2			D-ST2,5-QUATTRO			
	=25.Z5.1+E12-T1G-X206	4						
			C11L+1		PT2,5-QUATTRO	=01.A2-F11C	LOAD+	=01.A2/11.F
					D-ST2,5-QUATTRO	-X45	B07	
						-X45	B09	
			C11ML1		PT2,5-QUATTRO	=01.A2-T2M	OutDC:-'	=01.A2/11.F
					D-ST2,5-QUATTRO	-X45	B08	
						-X45	B10	
	=01.A2-F4H	LOAD+	H4L+1		PT2,5-QUATTRO			=01.A2/4.J
	=11.H0+E12-T3B-X200	1						
	=11.H0+E12-Q6E	13						
	=11.H0+E12-T3B-X2	11	H4L+2		PT2,5-QUATTRO	=71.M1-X200.226	2	=11.H0/4.P
	=11.H0+E12-T3B-X2	10						
	=21.C1.2+E12-T1B-X100	1	H4L+3		PT2,5-QUATTRO			=21.C1.2/1.U
	=21.C1.2+E12-T1B-X2	11						
	=71.M1-X200.227	2						
	=71.M1+E11-K80J	13	H4L+4		PT2,5-QUATTRO			=21.C1.2/3.M
	=71.M1-X200.227	6						
	=01.A3-K3M	33						
	=22.C2.1+E12-T1B-X200	1	H4L+6		PT2,5-QUATTRO			=22.C2.1/1.U
	=22.C2.1+E12-T1B-X2	11						
	=71.M1-X200.232	2						
	=01.A3-K3P	23						
	=71.M1-X200.232	6	H4L+7		PT2,5-QUATTRO			=22.C2.1/3.S
	=01.A3-K3P	43			D-ST2,5-QUATTRO			
	-X91	1						
	=01.A3-K3E	73						
	=11.H0+E12-T3B-X2	12	H4ML1		PT2,5-QUATTRO	-X5	C1ML:b	=01.A2/4.K

Created with a trial version of Symbusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +E13-X5.1	= XK1	function page 15/50
			design.	PED				+ E13	
			check.				98290 WS450 KL x 5500 CNC Monolith	2953	page 255
change	date	name	norm		originally. created for.	created by.			

Terminal diagram

terminal connection diagram

+E13-X5.1

cable name	cable type	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	cable type	cable name	page/ path
							=11.H0+E12-T3B-X200	2			
		=21.C1.2+E12-T1B-X100	5	H4ML2		PT2,5-QUATTRO	=11.H0-Q6H	A2			=11.H0/6.H
		=21.C1.2+E12-T1B-X2	12								
		=21.C1.2+E12-T1B-X1	3	H4ML3		PT2,5-QUATTRO	=01.A3-K3M	23			=21.C1.2/3.N
		=22.C2.1+E12-T1B-X2	12	H4ML5		PT2,5-QUATTRO	=22.C2.1+E12-T1B-X200	2			=22.C2.1/1.V
		=01.A3-K3P	33								
				H4ML6		PT2,5-QUATTRO	=22.C2.1+E12-T1B-X1	3			=22.C2.1/3.P
		=01.A3-K3E	83			D-ST2,5-QUATTRO					
		=21.Z1.1+E12-T1G-X200	1	Q4L+1		PT2,5-QUATTRO	=01.A2-F4P	LOAD+			=01.A2/4.P
		=21.Z1.1+E12-T1G-X2	11								
		=71.M1-X200.228	2	Q4L+2		PT2,5-QUATTRO					=21.Z1.1/4.J
		=01.A3-K3E	13								
		=71.M1-X200.228	6								
		=25.Z5.1+E12-T1G-X200	1	Q4L+3		PT2,5-QUATTRO					=25.Z5.1/1.K
		=25.Z5.1+E12-T1G-X2	11								
		=71.M1-X200.233	2								
		=01.A3-K3H	13	Q4L+4		PT2,5-QUATTRO					=25.Z5.1/3.M
		=71.M1-X200.233	6			D-ST2,5-QUATTRO					
		=21.Z1.1+E12-T1G-X200	2	Q4ML1		PT2,5-QUATTRO	-X5	C1ML:b			=01.A2/4.Q
		=21.Z1.1+E12-T1G-X2	12								
		=21.Z1.1+E12-T1G-X1	3	Q4ML2		PT2,5-QUATTRO	=01.A3-K3E	33			=21.Z1.1/4.Q
		=21.Z1.1+E12-T1G-X1	6								
		=25.Z5.1+E12-T1G-X2	12	Q4ML3		PT2,5-QUATTRO	=25.Z5.1+E12-T1G-X200	2			=25.Z5.1/1.L
		=01.A3-K3H	43								
		=25.Z5.1+E12-T1G-X1	6	Q4ML4		PT2,5-QUATTRO	=25.Z5.1+E12-T1G-X1	3			=25.Z5.1/3.R
						D-ST2,5-QUATTRO					
		=71.M1-K1K	X101:24V+	U4L+1		PT2,5-QUATTRO	=01.A2-F4U	LOAD+			=01.A2/4.U
		=71.M1-S11F	13								
		=91.S5-S5F	13	U4L+2		PT2,5-QUATTRO	=91.S5-K1K	X101:24V+			=91.S5/5.E
		=91.S7-K1K	X101:24V+			D-ST2,5-QUATTRO					
		=91.S7-S4F	13								
		=71.M1-X200.229	5								
		=71.M1-K1K	X101:GND	U4ML1		PT2,5-QUATTRO	-X5	K1ML:b			=01.A2/4.W
		=91.S7-K1K	X101:GND	U4ML2		PT2,5-QUATTRO	=91.S5-K1K	X101:GND			=91.S5/5.F
						D-ST2,5-QUATTRO					

Created with a trial version of Synctubon PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +E13-X5.1	= XK1	function page 16/50
			design.	PED				+ E13	
			check.				98290 WS450 KL x 5500 CNC Monolith	2953	page 256
change	date	name	norm		originally. created for.	created by.			

Terminal diagram

terminal connection diagram

+E13-X5.1

cable name	cable type	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	cable name	cable type	page/ path
		=25.Z5.1+E12-T1G-X1	10	1		PT2,5	=71.M1-X200.233	5			=25.Z5.1/3.U
		=25.Z5.1+E12-T1G-X1	13	2		PT2,5					=25.Z5.1/3.W
						D-ST2,5					
						CLIPFIX35					

Created with a trial version of Syncfusion PDF library.

change	date	name	norm		originally.	created for.	created by.			
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	terminal diagram +E13-X5.1		= XK1 + E13	function page 17/50
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 257

Terminal diagram

terminal connection diagram

+E13-X8

terminal strip handwheel

cable type	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	page/ path
	=01.A1+E11-PE		PE	,	PT 6-PE			=01.A1/30.N
					D-PT 6			
					CLIPFIX35			
	-X68	A01	1	,	PT 2,5-TWIN	=01.A3-K2B-X1	2	=01.A3/1.T
	-X68.1	A01						
	-X68	A02	2	,	PT 2,5-TWIN	-X86	20	=01.A3/1.T
	-X68.1	A02						
	-X68	A03	3	,	PT 2,5-TWIN	=01.A3-K2B-X1	1	=01.A3/1.T
	-X68.1	A03						
	-X68	A04	4	,	PT 2,5-TWIN	-X86	18	=01.A3/1.T
	-X68.1	A04						
	-X68	A05	5	,	PT 2,5-TWIN	=71.M1-X200.97	2	=81.P11/1.F
	-X68.1	A05						
	-X68	A06	6	,	PT 2,5-TWIN	=71.M1-X200.97	1	=81.P11/1.F
	-X68.1	A06						
	-X68	A07	7	,	PT 2,5-TWIN	=71.M1-X200.97	6	=81.P11/1.G
	-X68.1	A07						
	-X68	A08	8	,	PT 2,5-TWIN	=71.M1-X200.97	5	=81.P11/1.G
	-X68.1	A08						
	-X68	A09	9	,	PT 2,5-TWIN	=71.M1-X200.89	1	=81.P11/1.H
	-X68.1	A09						
	-X68	A10	10	,	PT 2,5-TWIN	=71.M1-X200.89	5	=81.P11/1.H
	-X68.1	A10						
	-X68	A11	11	,	PT 2,5-TWIN	=71.M1-X200.89	4	=81.P11/1.J
	-X68.1	A11						
	-X68	A12	12	,	PT 2,5-TWIN	=71.M1-X200.89	8	=81.P11/1.J
	-X68.1	A12						
	-X68	A13	13	,	PT 2,5-TWIN	-X5.1	C3L+3:b	=81.P11/1.J
	-X68.1	A13						
	-X68	A14	14	,	PT 2,5-TWIN	=71.M1-X200.91	1	=81.P11/1.K
	-X68.1	A14						
	-X68	A15	15	,	PT 2,5-TWIN	=71.M1-X200.91	5	=81.P11/1.K
	-X68.1	A15						
	-X68	A16	16	,	PT 2,5-TWIN	=71.M1-X200.91	4	=81.P11/1.L
	-X68.1	A16						

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +E13-X8	= XK1 + E13	function page 18/50
			design.	PED					
			check.					98290 WS450 KL x 5500 CNC Monolith	2953
change	date	name	norm		originally.	created for.	created by.		page 258

Terminal diagram

terminal connection diagram

+E13-X8

terminal strip handwheel

cable name										cable name	=81.P11-W15C
cable type	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	cable type	TRONIC-CY (LiY-CY) 6x0,5		page/ path
	-X68	B01	17	,	PT 2,5-TWIN	=71.M1-X200.93	1				=81.P11/1.L
	-X68.1	B01									
	-X68	B02	18	,	PT 2,5-TWIN	-X5.1	C3ML3:b				=81.P11/1.M
	-X68.1	B02									
	-X68	B03	19	,	PT 2,5-TWIN	=71.M1-X200.202	1				=81.P11/1.M
	-X68.1	B03									
	-X68	B04	20	,	PT 2,5-TWIN	=71.M1-X200.93	5				=81.P11/1.N
	-X68.1	B04									
	-X68	B05	21	,	PT 2,5-TWIN	=71.M1-X200.202	5				=81.P11/1.N
	-X68.1	B05									
	-X68	B06	22	,	PT 2,5-TWIN	=71.M1-X200.93	4				=81.P11/1.P
	-X68.1	B06									
	-X68	B07	23	,	PT 2,5-TWIN	=71.M1-X200.202	4				=81.P11/1.P
	-X68.1	B07									
	-X68	B08	24	,	PT 2,5-TWIN	=71.M1-X200.93	8				=81.P11/1.Q
	-X68.1	B08									
	-X68	B09	25	,	PT 2,5-TWIN	=71.M1-X200.202	8				=81.P11/1.R
	-X68.1	B09									
	-X68	B10	26	,	PT 2,5-TWIN	=71.M1-X200.95	1				=81.P11/1.R
	-X68.1	B10									
	-X68	B11	27	,	PT 2,5-TWIN	=71.M1-X200.204	1				=81.P11/1.S
	-X68.1	B11									
	-X68	B12	28	,	PT 2,5-TWIN	=71.M1-X200.95	5				=81.P11/1.S
	-X68.1	B12									
	-X68	B13	29	,	PT 2,5-TWIN	=71.M1-X200.204	5				=81.P11/1.T
	-X68.1	B13									
	-X68	B14	30	,	PT 2,5-TWIN	=71.M1-X200.394	1		GN		=81.P11/1.U
	-X68.1	B14									
	-X68	B15	31	,	PT 2,5-TWIN	=71.M1-X200.394	5		YE		=81.P11/1.U
	-X68.1	B15									
	-X68	B16	32	,	PT 2,5-TWIN	=71.M1-X200.394	2		GY		=81.P11/1.V
	-X68.1	B16									
	-X68	C01	33	,	PT 2,5-TWIN	=71.M1-X200.394	6		PK		=81.P11/1.V
	-X68.1	C01									
	-X68	C02	34	,	PT 2,5-TWIN	=71.M1-X200.394	1°		BN		=81.P11/1.W

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +E13-X8		= XK1	function page 19/50
			design.	PED					+ E13	
			check.					98290 WS450 KL x 5500 CNC Monolith	2953	page 259
change	date	name	norm		originally.	created for.	created by.			

Terminal diagram

terminal connection diagram

+E13-X8

terminal strip handwheel

cable name: =81.P11-W15C

cable type: TRONIC-CY (LiY-CY) 6x0,5

designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	page/ path
-X68.1	C02						
-X68	C03	35	,	PT 2,5-TWIN	=71.M1-X200.394	5°	=81.P11/1.W
-X68.1	C03						
-X68	C04	36	,	PT 2,5-TWIN	=71.M1-X200.97	8	=81.P11/1.X
-X68.1	C04						
-X68	D16	37	,	PT 2,5-TWIN	=71.M1-X200.394	8°	=81.P11/1.X
-X68.1	D16			D-ST2,5-TWIN			
				CLIPFIX35			

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +E13-X8	= XK1 + E13	function page 20/50
			design.	PED					
			check.					98290 WS450 KL x 5500 CNC Monolith	2953
change	date	name	norm		originally. / created for.	created by.			page 260

Terminal diagram

terminal connection diagram

+L1-X1

=01.A1-W31G	=01.A1-W31F	=01.A1-W31D	cable name	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	cable name	=01.A1-W31D	=01.A1-W31G	page/ path
JZ-HF 18x1	JZ-HF 34x1,5	JZ-HF / OZ-HF 34x1	cable type								cable type	JZ-HF / OZ-HF 34x1	JZ-HF 18x1	
		21		+U2-X45	21	C4L+1		PT2,5-QUATTRO	-X45	C03				=01.A3/11.D
						C4L+2		PT2,5-QUATTRO						=01.A3/11.U
								D-ST2,5-QUATTRO						
		25		+U2-X45	25	C4ML1		PT2,5-QUATTRO	-X45	C07				=01.A3/11.H
		27		+U2-X45	27	C4ML2		PT2,5-QUATTRO						=01.A3/11.Q
								D-ST2,5-QUATTRO						
				-X45	A03	C3L+1		PT2,5-QUATTRO	-X45	A01				=01.A2/3.J
				=71.M1-X500.0	1									
				=71.M1-X500.272	1									
	1			+Z1-X45	1	C3L+2		PT2,5-QUATTRO	+U2-X45	1		1		=71.M1/610.D
				=71.M1-X500.292	13			D-ST2,5-QUATTRO	+Z13-X60	1			1	
				-X45	A04	C3ML1		PT2,5-QUATTRO	-X45	A02				=01.A2/3.J
				=71.M1-X500.0	5									
				=71.M1-X500.272	5									
	2			+Z1-X45	2	C3ML2		PT2,5-QUATTRO	+U2-X45	2		2		=71.M1/610.E
2				+Z13-X60	2			D-ST2,5-QUATTRO						
				-X45	A07	C5L+1		PT2,5-QUATTRO	-X45	A05				=01.A2/5.J
				=71.M1-X500.0	2									
				-X45	A09									
	7			+Z1-X45	7	C5L+2		PT2,5-QUATTRO	+U2-X45	3		3		=71.M1/610.F
5				+Z13-X60	5			D-ST2,5-QUATTRO						
				-X45	A08	C5ML1		PT2,5-QUATTRO	-X45	A06				=01.A2/5.J
				=71.M1-X500.0	3									
				-X45	A10									
	8			+Z1-X45	8	C5ML2		PT2,5-QUATTRO	+U2-X45	4		4		=71.M1/610.F
6				+Z13-X60	6			D-ST2,5-QUATTRO						
				-X45	A13	C6L+1		PT2,5-QUATTRO	-X45	A11				=01.A2/6.J
				=71.M1-X500.197	2			D-ST2,5-QUATTRO						
	5			+Z1-X45	5	C6L+2		PT2,5-QUATTRO	+U2-X45	6		6		=71.M1/610.L
3				+Z13-X60	3			D-ST2,5-QUATTRO						
				-X45	A14	C6ML1		PT2,5-QUATTRO	-X45	A12				=01.A2/6.J
				=71.M1-X500.197	3									
	6			+Z1-X45	6	C6ML2		PT2,5-QUATTRO	+U2-X45	5		5		=71.M1/610.L
4				+Z13-X60	4			D-ST2,5-QUATTRO						
				-X45	B03	C8L+1		PT2,5-QUATTRO	-X45	B01				=01.A2/8.H

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +L1-X1	= XK1
			design.	PED				+ L1
			check.				98290 WS450 KL x 5500 CNC Monolith	2953
change	date	name	norm		originally. created for.	created by.		

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Terminal diagram

terminal connection diagram

+L1-X1

=01.A3-W12.1D	=01.A1-W31G	=01.A1-W31D	=01.A1-W31F	cable name	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	cable name	=91.S3-W35T	=01.A1-W31D	=01.A3-W12D	=01.A1-W31F	=01.A3-W12.1D	page/ path
ÖZ-J 10x0,5mm²	JZ-HF 18x1	JZ-HF / OZ-HF 34x1	JZ-HF 34x1,5	cable type	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	cable type	TRONIC-CY (UY-CY) 3x0,5	JZ-HF / OZ-HF 34x1	JZ-HF 10x0,5	JZ-HF 34x1,5	ÖZ-J 10x0,5mm²	page/ path
					=71.M1-X500.272	2				=91.S3+Z1-K30T	G		BN					
			3		+Z1-X45	3	C8L+2		PT2,5-QUATTRO	+U2-X45	7			7				=71.M1/610.R
									D-ST2,5-QUATTRO									
					-X45	B04	C8ML1		PT2,5-QUATTRO	-X45	B02							=01.A2/8.H
					=71.M1-X500.272	3												
			4		+Z1-X45	4	C8ML2		PT2,5-QUATTRO	+U2-X45	8			8				=71.M1/610.R
									D-ST2,5-QUATTRO									
		15			+U2-X45	15	C11L+1		PT2,5-QUATTRO	-X45	B07							=01.A2/11.F
					=71.M1-X500.292	7			D-ST2,5-QUATTRO									
		16			+U2-X45	16	C11ML1		PT2,5-QUATTRO	-X45	B08							=01.A2/11.F
					=71.M1-X500.292	15			D-ST2,5-QUATTRO									
		17			+U2-X45	17	C11L+2		PT2,5-QUATTRO	-X45	B09							=01.A2/11.F
									D-ST2,5-QUATTRO									
		18			+U2-X45	18	C11ML2		PT2,5-QUATTRO	-X45	B10							=01.A2/11.F
									D-ST2,5-QUATTRO									
							U9L+		PT2,5	-X45	B05							=01.A2/9.U
			11		+Z1-X45	11	U9L+		PT2,5									=91.S2/2.C
									D-ST2,5									
							U9ML		PT2,5	-X45	B06							=01.A2/9.V
			12		+Z1-X45	12	U9ML		PT4									=91.S2/2.D
									D-ST2,5									
							1		PT2,5	-X45	B11							=01.A3/1.J
							2		PT2,5	+U2-X45	11			11				=01.A3/1.J
							3		PT2,5	-X45	B13							=01.A3/1.K
							4		PT2,5	+U2-X45	13			13				=01.A3/1.K
							5		PT2,5	=21.Z1.1+U1-A10B-B10G	22				2			=01.A3/10.D
							6		PT2,5	+U2-X45	19			19				=01.A3/10.D
							7		PT2,5	-X45	B16							=01.A3/10.K
			14		+Z1-X45	14	8		PT2,5									=01.A3/10.K
	7				+Z13-X60	7	9		PT2,5	+Z1-X45	13					13		=01.A3/10.K
	8				+Z13-X60	8	10		PT2,5	+U2-X45	20			20				=01.A3/10.K
1					=21.X1.1+U1-A10B-B10E	21	11		PT2,5	-X45	C01							=01.A3/10.T
					-X45	C02	12		PT2,5	=21.X1.1+U1-A10B-B10G	22						2	=01.A3/10.T
					-X45	C08	13		PT2,5									=01.A3/11.M
					-X45	C09	14		PT2,5									=01.A3/11.N

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +L1-X1	= XK1	function page 22/50
			design.	PED				+ L1	
			check.				98290 WS450 KL x 5500 CNC Monolith	2953	page 262
change	date	name	norm		originally. created for.	created by.			

Terminal diagram

terminal connection diagram

+L1-X1

=01.A1-W31H	=91.S1-W1D	cable name	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	cable name	=01.A1-W31D	=01.A1-W31F	page/ path
JZ-HF 7x1,5	JZ-HF 4x2,5	cable type								cable type	JZ-HF / OZ-HF 34x1	JZ-HF 34x1,5	
			=71.M1-X500.6	4	15		PT2,5						=01.A3/11.P
					16		PT2,5	+U2-X45	26		26		=01.A3/11.P
					17		PT2,5	-X45	C14				=01.A3/11.X
					18		PT2,5						=01.A3/11.X
					19		PT2,5						=01.A3/11.X
			-X45	C12	20		PT2,5						=01.A3/11.U
			-X45	C13	21		PT2,5						=01.A3/11.U
	1		+Z1-X1	D1L:a	22		PT2,5	+S1-X50	1				=91.S1/1.S
	2		+Z1-X1	D1N:a	23		PT2,5	+S1-X50	2				=91.S1/1.T
			-X40	19	24		PT2,5	+Z1-X45	24			24	=28.C8.1/1.D
			-X40	20	25		PT2,5	+Z1-X45	25			25	=28.C8.1/1.D
			-X40	21	26		PT2,5	+Z1-X45	26			26	=28.C8.1/1.E
1			+Z13-X59	1	27		PT2,5	-X40	22				=01.A1/8.E
2			+Z13-X59	2	28		PT2,5	-X40	23				=01.A1/8.F
3			+Z13-X59	3	29		PT2,5	-X40	24				=01.A1/8.J
4			+Z13-X59	4	30		PT2,5	-X40	25				=01.A1/8.J
							D-ST2,5						
							CLIPFIX35						

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +L1-X1		= XK1	function page 23/50
			design.	PED					+ L1	
			check.					98290 WS450 KL x 5500 CNC Monolith	2953	page 263
change	date	name	norm		originally.	created for.	created by.			

Terminal diagram

terminal connection diagram

+L1-XPE

=91.S7-W20E	=91.S7-W20B	=01.A1-W30F	=01.A1-W30D	=01.A1-W30B	cable name	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	cable name	=01.A1+S1-W30B	=91.S1-W3E	=91.S7-W20J	page/ path
ÖZ-J 3x0,75	ÖZ-J 3x0,75	H07V-K 1x16mm²	H07V-K 1x16mm²	H07V-K 1x35mm²	cable type								cable type	H07V-K 1x35	H07V-K 1x16mm²	ÖZ-J 3x0,75	
				GNYE		+U2-X1	PE:a	PE	,	UT35-PE				GNYE			=01.A1/30.B
			GNYE			=01.A1+U1-PE	PE	PE	,	UT16-PE							=01.A1/30.D
		GNYE				+Z1-X1	PE:a	PE	,	UT16-PE							=01.A1/30.F
								PE	,	UT16-PE							=01.A1/30.G
								PE	,	UT6-PE	=01.A1-PE						=01.A1/36.C
								PE	,	UT6-PE	=01.A1-PE						=01.A1/36.D
								PE	,	UT6-PE	=01.A1-PE						=01.A1/36.E
								PE	,	PT 6-PE	+Z1-X1	PE:a			GNYE		=91.S1/3.E
						=91.S7-X1N		PE1	PT2,5	-QUATTRO-PE							=21.Z1.1/6.F
								PE2	PT2,5	-QUATTRO-PE							=01.A1/31.F
								PE3	PT2,5	-QUATTRO-PE	=21.Z1.1-B6Q	PE					=21.Z1.1/6.P
								PE4	PT2,5	-QUATTRO-PE	+S1-X50	PE1					=01.A1/31.B
								PE5	PT2,5	-QUATTRO-PE							=01.A1/31.D
	GNYE					=91.S7+U1-K20C	PE	PE6	PT2,5	-QUATTRO-PE	=91.S7+U1-K20K	PE			GNYE		=91.S7/20.C
GNYE						=91.S7+U1-K20F	PE			CLIPFIX35							

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +L1-XPE		= XK1
			design.	PED					+ L1
			check.					98290 WS450 KL x 5500 CNC Monolith	2953
change	date	name	norm		originally.	created for.	created by.		

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Terminal diagram

terminal connection diagram

+N1-X1

terminal strip machine bed

=01.A1+T1-W30K	=01.A1+T1-W30L	cable name	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	cable name	=01.A1+S1-W30K	page/ path
H07V-K 1x25mm²	H07V-K 1x16	cable type								cable type	H07V-K 1x35	
	GNYE		+X3-X1	PE:a	PE	,	PT16N-PE					=01.A1/30.M
							CLIPFIX35					
GNYE			=01.A1+T1-PE	PE	PE	,	PT16N-PE				GNYE	=01.A1/30.L
					PE	,	UT6-PE	=01.A1+S1-PE				=01.A1/36.S
					PE	,	UT6-PE	=01.A1+S1-PE				=01.A1/36.T
					PE	,	UT6-PE	=01.A1+S1-PE				=01.A1/36.Q
					PE1	PT2,5-QUATTRO-PE		-X80	PE1			=01.A1/31.J
								-X81	PE1			
					PE2	PT2,5-QUATTRO-PE						=22.C2.1/4.F
					PE3	PT2,5-QUATTRO-PE						=61.L3/2.L
							D-ST2,5					
			-X81	A03	C3L+1	PT2,5-QUATTRO		-X81	A01			=01.A2/3.G
			=71.M1-X350.0	1								
					C3L+2	PT2,5-QUATTRO		=71.M1-X350.214	1			=71.M1/360.L
					C3L+3	PT2,5-QUATTRO						=6 (+N1 Spindelstock.N1)
					C3L+4	PT2,5-QUATTRO						=6 (+N1 Spindelstock.N1)
						D-ST2,5-QUATTRO						
			-X81	A04	C3ML1	PT2,5-QUATTRO		-X81	A02			=01.A2/3.G
			=71.M1-X350.0	5								
					C3ML2	PT2,5-QUATTRO		=71.M1-X350.214	5			=71.M1/360.M
					C3ML3	PT2,5-QUATTRO						=6 (+N1 Spindelstock.N1)
					C3ML4	PT2,5-QUATTRO						=6 (+N1 Spindelstock.N1)
						D-ST2,5-QUATTRO						
			-X81	A07	C5L+1	PT2,5-QUATTRO		-X81	A05			=01.A2/5.G
					C5L+2	PT2,5-QUATTRO		=71.M1-X350.0	2			=71.M1/360.G
					C5L+3	PT2,5-QUATTRO						=47.Y28.1/10.H
					C5L+4	PT2,5-QUATTRO						=6 (+N1 Spindelstock.N1)
						D-ST2,5-QUATTRO						
			-X81	A08	C5ML1	PT2,5-QUATTRO		-X81	A06			=01.A2/5.G
					C5ML2	PT2,5-QUATTRO		=71.M1-X350.0	3			=71.M1/360.G
					C5ML3	PT2,5-QUATTRO						=47.Y28.1/10.H
					C5ML4	PT2,5-QUATTRO						=6 (+N1 Spindelstock.N1)
						D-ST2,5-QUATTRO						
			-X81	A11	C6L+1	PT2,5-QUATTRO		-X81	A09			=01.A2/6.G
					C6L+2	PT2,5-QUATTRO		=71.M1-X350.214	2			=71.M1/360.N

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +N1-X1	= XK1	function page 25/50
			design.	PED				+ N1	
			check.					98290 WS450 KL x 5500 CNC Monolith	2953
change	date	name	norm		originally. created for.	created by.			page 265

Terminal diagram

terminal connection diagram

+N1-X1

terminal strip machine bed

=61.L3-W2C	=22.C2.1+T1-W4D	cable name	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	cable name	=01.A1-W31L	page/ path
JZ-HF 7x1.5	ÖZ-J 4x1.5mm²	cable type								cable type	JZ-HF 18x1	
						D-ST2,5-QUATTRO						
			-X81	A12	C6ML1	PT2,5-QUATTRO		-X81	A10			=01.A2/6.G
					C6ML2	PT2,5-QUATTRO		=71.M1-X350.214	3			=71.M1/360.N
						D-ST2,5-QUATTRO						
			-X81	A15	C8L+1	PT2,5-QUATTRO		-X81	A13			=01.A2/8.F
					C8L+2	PT2,5-QUATTRO		+X3-X81	6		6	=22.Z2.2/20.L
					C8L+3	PT2,5-QUATTRO						=6 (+N1 Spindelstock.N1)
						D-ST2,5-QUATTRO						
			-X81	A16	C8ML1	PT2,5-QUATTRO		-X81	A14			=01.A2/8.F
					C8ML2	PT2,5-QUATTRO		+X3-X81	8		8	=22.Z2.2/20.M
					C8ML3	PT2,5-QUATTRO						=6 (+N1 Spindelstock.N1)
						D-ST2,5-QUATTRO						
			-X81	B11	1		PT2,5					=01.A3/14.K
			-X81	B14	3		PT2,5					=01.A3/14.T
			-X81	B12	2		PT2,5					=01.A3/14.L
			-X81	B15	4		PT2,5					=01.A3/14.T
			=22.C2.1-R4C		5		PT2,5	-X80	4			=22.C2.1/4.D
	1		+T1-X15	5	6		PT2,5					=22.C2.1/4.D
			=22.C2.1-R4C		7		PT2,5	-X80	5			=22.C2.1/4.E
	2		+T1-X15	1	8		PT2,5					=22.C2.1/4.E
			=22.C2.1-R4C		9		PT2,5	-X80	6			=22.C2.1/4.E
	3		+T1-X15	2	10		PT2,5					=22.C2.1/4.E
			-X81	B10	11		PT2,5					=01.A3/14.J
			-X81	B13	12		PT2,5					=01.A3/14.S
1			=61.L3+T1-B2B	1	13		PT2,5					=61.L3/2.C
3			=61.L3+T1-B2B	3	14		PT2,5	=71.M1-X350.103	2			=61.L3/2.D
							CLIPFIX35					
							D-ST2,5					

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +N1-X1		= XK1 / + N1	function page 26/50
			design.	PED						
			check.					98290 WS450 KL x 5500 CNC Monolith	2953	page 266
change	date	name	norm		originally.	created for.	created by.			

Terminal diagram

terminal connection diagram

+N1-X2

=01.A3-W12L	=01.A1-W31N	cable name	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	cable name	=01.A3-W12L	=01.A1-W31N	page/ path
JZ-HF 7x1,5	JZ-HF 34x1	cable type								cable type	JZ-HF 7x1,5	JZ-HF 34x1	
			-X81	B06	1		PT2,5	=01.A3+T1-S12L	12		2		=01.A3/12.L
			-X81	B07	2		PT2,5	=01.A3+T1-S12L	22		3		=01.A3/12.M
			-X81	B08	3		PT2,5	+T1-X89	16			16	=01.A3/12.Q
	17		+T1-X89	17	4		PT2,5						=01.A3/12.Q
5			=01.A3+T1-S12L	A1	5		PT2,5						=01.A3/12.Q
			-X81	C01	6		PT2,5						=01.A3/15.P
			-X81	C02	7		PT2,5						=01.A3/15.R
					9		PT2,5						=01.A3/16.P
					10		PT2,5						=01.A3/16.P
			-X81	C03	11		PT2,5						=01.A3/16.P
			-X81	C04	12		PT2,5						=01.A3/16.R
							D-ST2,5						
			-X81	B05	C4L+		PT2,5	=01.A3+T1-S12L	21		1		=01.A3/12.L
					C4L+		PT2,5						=01.A3/14.G
					C4L+		PT2,5						=01.A3/14.Q
					C4L+		PT2,5						=01.A3/15.D
					C4L+		PT2,5						=01.A3/15.N
					C4L+		PT2,5						=01.A3/15.U
					C4L+		PT2,5						=01.A3/16.D
					C4L+		PT2,5						=01.A3/16.N
					C4L+		PT2,5						=01.A3/16.V
							D-ST2,5						
					C4ML		PT2,5						=01.A3/15.D
					C4ML		PT2,5	-X81	B16				=01.A3/15.D
					C4ML		PT2,5						=01.A3/15.N
					C4ML		PT2,5						=01.A3/16.N
					C4ML		PT2,5						=01.A3/16.F
					C4ML		PT2,5	+E13-X81	B16				=01.A3/15.D
					C4ML		PT2,5						=01.A3/14.Q
					C4ML		PT2,5						=01.A3/14.G
					C4ML		PT2,5	+T1-X89	18			18	=01.A3/12.R
			-X81	B09	C4ML		PT2,5	=01.A3+T1-S12L	A2		4		=01.A3/12.Q
							D-ST2,5						
							CLIPFIX35						

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +N1-X2		= XK1
			design.	PED					+ N1
			check.					98290 WS450 KL x 5500 CNC Monolith	2953
change	date	name	norm		originally.	created for.	created by.		

function page 27/50

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Terminal diagram

terminal connection diagram

+N1-X3

terminal strip

cable name	cable type	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	cable name	cable type	page/ path
				1		PTTB 2,5					=6 (+N1 Spindelstock.N1)
				2							
				3		PTTB 2,5					=6 (+N1 Spindelstock.N1)
				4							
				5		PTTB 2,5					=6 (+N1 Spindelstock.N1)
				6							
				7		PTTB 2,5					=6 (+N1 Spindelstock.N1)
				8							
				9		PTTB 2,5					=6 (+N1 Spindelstock.N1)
						CLIPFIX35					
				10							

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +N1-X3	= XK1 + N1	function page 29/50
			design.	PED					
			check.					98290 WS450 KL x 5500 CNC Monolith	2953
change	date	name	norm		originally. / created for.	created by.			page 268

Terminal diagram

terminal connection diagram

+T2-X1

cable name	cable type	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	cable name	cable type	page/ path
=61.L5-W10F	ÖZ-J 4x0.5mm²								=01.A1+S1-W30S	H07V-K 1x16	
		=01.A1-PE	PE	PE		UT16-PE				GNYE	=01.A1/30.T
						CLIPFIX35					
				PE		UT6-PE					=01.A1/36.P
				PE		UT6-PE	=01.A1-PE				=01.A1/36.M
				PE		UT6-PE	=01.A1-PE				=01.A1/36.L
				PE		PT2,5-PE	=25.Z5.1-M4D	PE	=25.Z5.1-W3D	GNYE	=25.Z5.1/4.G
				PE1		PT2,5-QUATTRO-PE	-X86	PE1			=01.A1/35.S
						D-ST2,5-QUATTRO					
				PE2		PT2,5-QUATTRO-PE	=25.Z5.1-A10F-B10J		=01.A3-W10R	GNYE	=25.Z5.1/10.L
						D-ST2,5-QUATTRO	=25.Z5.1-B3N	PE			
							=25.Z5.1-B3R	PE			
		-X86	3	C3L+1		PT2,5-QUATTRO	-X86	1			=01.A2/3.L
		=71.M1-X700.0	1			D-ST2,5-QUATTRO					
		-X86	4	C3ML1		PT2,5-QUATTRO	-X86	2			=01.A2/3.L
		=71.M1-X700.0	5			D-ST2,5-QUATTRO					
		-X86	7	C5L+1		PT2,5-QUATTRO	-X86	5			=01.A2/5.L
		=71.M1-X700.0	2								
		=25.Z5.2-B10G	BN	C5L+2		PT2,5-QUATTRO	=25.Z5.2-B10E	BN			=25.Z5.2/10.E
	2	=61.L5-B10F	BN	C5L+3		PT2,5-QUATTRO	=61.L5-B10C	BN		2	=61.L5/10.E
		=61.L5-B10J	NC			D-ST2,5-QUATTRO					
		-X86	8	C5ML1		PT2,5-QUATTRO	-X86	6			=01.A2/5.L
		=71.M1-X700.0	3								
		=25.Z5.2-B10G	BU	C5ML2		PT2,5-QUATTRO	=25.Z5.2-B10E	BU			=25.Z5.2/10.E
	3	=61.L5-B10F	BU	C5ML3		PT2,5-QUATTRO	=61.L5-B10C	BU		3	=61.L5/10.F
						D-ST2,5-QUATTRO					
		-X86	15	C8L+1		PT2,5-QUATTRO	-X86	13			=01.A2/8.K
		=71.M1-X700.238	2								
				C8L+2		PT2,5-QUATTRO	=25.Z5.2-K21E-X1				=25.Z5.2/21.F
						D-ST2,5-QUATTRO					
		-X86	16	C8ML1		PT2,5-QUATTRO	-X86	14			=01.A2/8.K
		=71.M1-X700.238	3								
		=25.Z5.2-K21E-X1		C8ML2		PT2,5-QUATTRO	=25.Z5.2-K21E-X1				=25.Z5.2/21.G
		=25.Z5.2-K21E-X1				D-ST2,5-QUATTRO					
		=71.M1-X700.648	2								
		-X86	11	C6L+		PT2,5-QUATTRO	-X86	9			=01.A2/6.L

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +T2-X1	= XK1	function page 30/50
			design.	PED				+ T2	
			check.				98290 WS450 KL x 5500 CNC Monolith	2953	page 269
change	date	name	norm		originally. created for.	created by.			

Terminal diagram

										=01.A3-W10R	cable name	terminal connection diagram +T2-X1																	
										JZ-HF 7x0,5	cable type	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	cable type											page/ path
															D-ST2,5-QUATTRO															
												-X86	12	C6ML	PT2,5-QUATTRO		-X86	10												=01.A2/6.L
															D-ST2,5-QUATTRO															
										5		=25.Z5.1-A10F-B10J	22	1		PT2,5	=01.A3-B1P	COM												=01.A3/10.P
												-X86	22	2		PT2,5	=01.A3-B1P	NC												=01.A3/10.P
												=71.M1-X700.22	5	3		PT2,5	=01.A3-B1P	NO												=01.A3/10.Q
												=25.Z5.2-K21E-X1		4		PT2,5	=71.M1-X700.647	1												=25.Z5.2/21.K
												=25.Z5.2-K21E-X1		5		PT2,5	=71.M1-X700.648	1												=25.Z5.2/21.Q
														6		PT2,5	-X86	17												=01.A3/1.P
														7		PT2,5	-X86	18												=01.A3/1.P
														8		PT2,5	-X86	19												=01.A3/1.Q
														9		PT2,5	-X86	20												=01.A3/1.Q
																CLIPFIX35														
																D-ST2,5														

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +T2-X1		= XK1 + T2	function page 31/50
			design.	PED						
			check.					98290 WS450 KL x 5500 CNC Monolith	2953	page 270
change	date	name	norm		originally.	created for.	created by.			

Terminal diagram

terminal connection diagram

+U2-X1

cable name	cable type	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	cable type	cable name	page/ path
=01.A3-W9C	ÖZ-J 8x0,5mm²									=01.A3-W9C	
=01.A1-W30B	H07V-K 1x35mm²								H07V-K 1x35mm²	=01.A1+L1-W30B	
	GNYE	=01.A1-PE	PE	PE	,	UT35-PE	+L1-XPE	PE:b	GNYE		=01.A1/30.B
				PE	,	UT6-PE	=01.A1-PE				=01.A1/36.G
				PE	,	UT6-PE	=01.A1-PE				=01.A1/36.H
				PE	,	UT6-PE	=01.A1-PE				=01.A1/36.J
				PE1	,	PT2,5-QUATTRO-PE	-X40	PE1			=01.A1/31.B
							-X45	PE1			
				PE2	,	PT2,5-QUATTRO-PE					=21.C1.2/8.F
				PE3	,	PT2,5-QUATTRO-PE					=01.A1/7.Q
		-X45	17	C11L+	,	PT2,5-QUATTRO	-X45	15			=01.A2/11.F
		=71.M1-X600.290	7			D-ST2,5-QUATTRO					
		-X45	18	C11ML	,	PT2,5-QUATTRO	-X45	16			=01.A2/11.F
		=71.M1-X600.290	15			D-ST2,5-QUATTRO					
		=71.M1-X600.169	1	C3L+1	•	PT2,5-QUATTRO	=71.M1-X600.0	1			=71.M1/610.D
		=71.M1-X600.230	1								
		=37.A17.1-A1S	1	C3L+2	•	PT2,5-QUATTRO	=71.M1-X600.290	13			=37.A17.1/1.H
						D-ST2,5-QUATTRO					
		=71.M1-X600.169	5	C3ML1	•	PT2,5-QUATTRO	=71.M1-X600.0	5			=71.M1/610.E
		=71.M1-X600.230	5								
				C3ML2	•	PT2,5-QUATTRO	=37.A17.1-A1S	2			=37.A17.1/1.T
						D-ST2,5-QUATTRO					
				C5L+1	,	PT2,5-QUATTRO	=71.M1-X600.0	2			=71.M1/610.F
						D-ST2,5-QUATTRO					
				C5ML1	,	PT2,5-QUATTRO	=71.M1-X600.0	3			=71.M1/610.F
						D-ST2,5-QUATTRO					
				C6L+	,	PT2,5-QUATTRO	=71.M1-X600.169	2			=71.M1/610.L
						D-ST2,5-QUATTRO					
				C6ML	,	PT2,5-QUATTRO	=71.M1-X600.169	3			=71.M1/610.L
						D-ST2,5-QUATTRO					
				C8L+	,	PT2,5-QUATTRO	=71.M1-X600.230	2			=71.M1/610.R
						D-ST2,5-QUATTRO					
				C8ML	,	PT2,5-QUATTRO	=71.M1-X600.230	3			=71.M1/610.R
						D-ST2,5-QUATTRO					
	1	=01.A3-S11C	21	1	,	PT2,5	-X45	21			=01.A3/11.D
		-X45	22	2	,	PT2,5	=01.A3-S11C	22		2	=01.A3/11.D
							-X1	3:a		2	

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +U2-X1	= XK1	function page 32/50
			design.	PED				+ U2	
			check.				98290 WS450 KL x 5500 CNC Monolith	2953	page 271
change	date	name	norm		originally. created for.	created by.			

Terminal diagram

terminal connection diagram

+U2-X1

cable name	cable type	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	cable name	cable type	page/ path
=01.A3-W12L	ÖZ-J 10x0,5mm²								=01.A3-W9C	ÖZ-J 8x0,5mm²	
									=21.C1.2-W7D	ÖZ-J 4x1.5mm²	
		-X45	23	3		PT2,5	-X1	2:a		2	=01.A3/11.E
	1	=21.C1.1-A10B-B10G	22	4		PT2,5	=01.A3-B10J	BN			=01.A3/10.K
		=21.C1.2-R7C		5		PT2,5	-X40	3			=21.C1.2/7.D
				6		PT2,5	-X15	5		1	=21.C1.2/7.D
		=21.C1.2-R7C		7		PT2,5	-X40	4			=21.C1.2/7.E
				8		PT2,5	-X15	1		2	=21.C1.2/7.E
		=21.C1.2-R7C		9		PT2,5	-X40	5			=21.C1.2/7.E
				10		PT2,5	-X15	2		3	=21.C1.2/7.E
				11		PT2,5					=01.A3/11.J
		-X45	24	12		PT2,5					=01.A3/11.H
				13		PT2,5					=01.A3/11.H
				14		PT2,5					=01.A3/11.H
		-X45	25	15		PT2,5					=01.A3/11.H
				16		PT2,5					=01.A3/11.J
		-X45	26	17		PT2,5					=01.A3/11.P
		-X45	27	18		PT2,5					=01.A3/11.P
						D-ST2,5					
						CLIPFIX35					
				PE4							

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +U2-X1	= XK1	function page 33/50
			design.	PED				+ U2	
			check.				98290 WS450 KL x 5500 CNC Monolith	2953	page 272
change	date	name	norm		originally. / created for.	created by.			

Terminal diagram

terminal connection diagram

+U2-X2

upper saddle

cable name: =01.A1-W31B

cable type: JZ-HF 14x0,5

designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	page/ path
		PE		PT2,5-PE	-X1	PE1	=01.A1/31.B
-X45	9	1		PT2,5	=01.A2-X7C	1	=01.A2/7.D
-X45	10	2		PT2,5	=01.A2-X7C	3	=01.A2/7.F
=71.M1-X600.2	1	6		PT2,5	=21.C1.2-B10F	BK	=21.C1.2/10.F
=71.M1-X600.50	1	7		PT2,5	=37.A17.1-B10C	4	=37.A17.1/10.D
=71.M1-X600.50	5	8		PT2,5	=37.A17.1-B10H	4	=37.A17.1/10.J
=71.M1-X600.2	2	C5L+		PT2,5	=21.C1.2-B10F	BN	=21.C1.2/10.G
		C5L+		PT2,5	=37.A17.1-B10C	1	=37.A17.1/10.E
		C5L+		PT2,5	=37.A17.1-B10H	1	=37.A17.1/10.J
=71.M1-X600.2	3	C5ML		PT2,5	=21.C1.2-B10F	BU	=21.C1.2/10.G
		C5ML		PT2,5	=37.A17.1-B10C	3	=37.A17.1/10.E
		C5ML		PT2,5	=37.A17.1-B10H	3	=37.A17.1/10.K
				CLIPFIX35			

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +U2-X2	= XK1	function page 34/50
			design.	PED				+ U2	
			check.				98290 WS450 KL x 5500 CNC Monolith	2953	page 273
change	date	name	norm		originally. / created for.	created by.			

Terminal diagram

terminal connection diagram

+X1-A2B-X1

cable name	cable type	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	cable name	=61.L1-W2C	=61.L1-W2J	page/ path
									cable type	ÖZ-J 4x1.5mm²	ÖZ-J 4x1.5mm²	
		=61.L1-M2C	PE	PE	,	PT2,5-PE	-X0	PE:b		GNYE		=61.L1/2.F
				PE	,	PT2,5-PE	-X0	PE:b			GNYE	=61.L1/2.L
		=61.L1-M2J	PE	PE	,	PT2,5-PE	=61.L1-A2B	PE				=61.L1/2.L
		=61.L1-M2C	U1	1	,	PT2,5	-X0	1:b		1		=61.L1/2.D
		=61.L1-M2C	V1	2	,	PT2,5	-X0	2:b		2		=61.L1/2.E
		=61.L1-M2C	W1	3	,	PT2,5	-X0	3:b		3		=61.L1/2.E
		=61.L1-A2B-Q1	1/L1	4	,	PT2,5	-X0	4:b			1	=61.L1/2.J
		=61.L1-A2B-Q1	3/L2	5	,	PT2,5	-X0	5:b			2	=61.L1/2.K
		=61.L1-A2B-Q1	5/L3	6	,	PT2,5	-X0	6:b			3	=61.L1/2.K
		=61.L1-M2J	U1	7	,	PT2,5	=61.L1-A2B-Q1	2/T1				=61.L1/2.J
		=61.L1-M2J	V1	8	,	PT2,5	=61.L1-A2B-Q1	4/T2				=61.L1/2.K
		=61.L1-M2J	W1	9	,	PT2,5	=61.L1-A2B-Q1	6/T3				=61.L1/2.K

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +X1-A2B-X1		= XK1	function page 35/50
			design.	PED					+ X1	
			check.					98290 WS450 KL x 5500 CNC Monolith	2953	page 274
change	date	name	norm		originally.	created for.	created by.			

Terminal diagram

terminal connection diagram

+X1-A2B-X2

cable name: =61.L1-W3D

cable type: JZ-603 7x1,5mm²

designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	page/ path
=61.L1-A2B-P1		L+		PT2,5	-X91	1	=61.L1/3.D
=61.L1-A2B-B1	13	L+		PT2,5			=61.L1/3.G
=61.L1-A2B-K2	11	L+		PT2,5			=61.L1/3.H
=61.L1-A2B-B2	13	L+		PT2,5			=61.L1/3.K
=61.L1-A2B-B3	13	L+		PT2,5			=61.L1/3.M
=61.L1-A2B-K1	11	L+		PT2,5			=61.L1/3.P
-X91	2	ML		PT2,5	=61.L1-A2B-P1		=61.L1/3.D
		ML		PT2,5	=61.L1-A2B-K1	A2	=61.L1/3.G
-X91	3	4		PT2,5	=61.L1-A2B-K1	21	=61.L1/3.S
-X91	4	5		PT2,5	=61.L1-A2B-K1	24	=61.L1/3.S
-X91	5	6		PT2,5	=61.L1-A2B-K2	24	=61.L1/3.U
-X91	6	7		PT2,5	=61.L1-A2B-K3	24	=61.L1/3.X

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +X1-A2B-X2	= XK1
			design.	PED				+ X1
			check.				98290 WS450 KL x 5500 CNC Monolith	2953
change	date	name	norm		originally. / created for.	created by.		

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Terminal diagram

terminal connection diagram

+X1-X0

=61.L1-W2J	=61.L1-W2C	=01.A1-W30V	cable name	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	cable name	=01.A1+W1-W30V	=61.L1-W2C	=61.L1-W2J	page/ path
ÖZ-J 4x1.5mm²	ÖZ-J 4x1.5mm²	H07V-K 1x16	cable type								cable type	H07V-K 1x16	ÖZ-J 4x1.5mm²	ÖZ-J 4x1.5mm²	
		GNYE		=01.A1-PE	PE	PE	,	UT16-PE	+E11-XPE	PE		GNYE			=01.A1/30.V
						PE	,	UT6-PE	=01.A1-PE						=01.A1/36.D
						PE	,	UT6-PE	=01.A1-PE						=01.A1/36.E
						PE	,	UT6-PE	=01.A1-PE						=01.A1/36.C
						PE	,	PT 6-PE	-X90	PE1					=01.A1/31.U
						PE	,	PT2,5-PE	-X1	PE					=61.L1/1.F
						PE	,	PT2,5-PE	-A2B-X1	PE:a			GNYE		=61.L1/2.F
						PE	,	PT2,5-PE	-A2B-X1	PE:a				GNYE	=61.L1/2.L
						PE	,	PT2,5-PE	-X91	PE1					=01.A1/31.W
						PE	,	PT2,5-PE	=61.L14-X1D	PE					=61.L14/1.F
								D-PT 6							
				-X91	8	C5L+		PT2,5	=61.L1-B10C	1					=61.L1/10.E
						C5L+		PT2,5	=61.L1-B10N						=61.L1/10.P
								D-ST2,5							
				-X91	10	C5ML	,	PT2,5	=61.L1-B10N						=61.L1/10.Q
	1			-A2B-X1	1:a	1	,	PT2,5	-X90	4					=61.L1/2.D
	2			-A2B-X1	2:a	2	,	PT2,5	-X90	5					=61.L1/2.E
	3			-A2B-X1	3:a	3	,	PT2,5	-X90	6					=61.L1/2.E
1				-A2B-X1	4:a	4	,	PT2,5	-X90	7					=61.L1/2.J
2				-A2B-X1	5:a	5	,	PT2,5	-X90	8					=61.L1/2.K
3				-A2B-X1	6:a	6	,	PT2,5	-X90	9					=61.L1/2.K
				-X91	7	7	,	PT2,5	=61.L1-B10C	2					=61.L1/10.D
				-X91	9	8	,	PT2,5	=61.L1-B10C	3					=61.L1/10.G
				-X91	11	10	,	PT2,5	=61.L1-B10N						=61.L1/10.P
				=61.L14-X1D	L1	11	,	PT2,5	-X90	10					=61.L14/1.E
				=61.L14-X1D	N	12	,	PT2,5	-X90	11					=61.L14/1.E
								D-ST2,5							
								CLIPFIX35							

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +X1-X0	= XK1	function page 37/50
			design.	PED				+ X1	
			check.				98290 WS450 KL x 5500 CNC Monolith	2953	page 276
change	date	name	norm		originally. created for.	created by.			

Terminal diagram

terminal connection diagram

+X3-X1

terminal strip hydraulic and lubrication

=61.L4-W10D	=61.L3-W1C	cable name	cable type	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	cable name	cable type	=01.A1+T1-W30L	=11.H11-W1C	page/ path
JZ-HF 3x0,5	ÖZ-J 4x1.5mm²											H07V-K 1x16		ÖZ-J 4x1.5mm²	
				=01.A1-PE	PE	PE	,	UT16-PE	+N1-X1	PE:b			GNYE		=01.A1/30.M
								CLIPFIX35							
						PE	,	UT6-PE	=01.A1-PE						=01.A1/36.H
						PE	,	UT6-PE	=01.A1-PE						=01.A1/36.J
						PE	,	UT6-PE	=01.A1-PE						=01.A1/36.G
						PE	,	PT2,5-PE	-X80	PE1					=01.A1/31.J
						PE	,	PT2,5-PE	-X81	PE1					=01.A1/31.L
						PE	,	PT2,5-PE	=11.H11+.1-M1D	PE				GNYE	=11.H11/1.F
						PE	,	PT2,5-PE	=61.L4-K10F	PE					=61.L4/10.K
								D-ST2,5							
	GNYE			-X82	PE	PE	,	PT2,5-PE							=61.L3/1.G
				=21.Z1.1-B5M	1	C5L+	●	PT2,5	-X81	2					=21.Z1.1/5.N
						C5L+	●	PT2,5	=11.H11+.1-B1L	1					=11.H11/1.M
						C5L+	●	PT2,5	=11.H11+.1-B1S	1					=11.H11/1.Q
								D-ST2,5							
2				=61.L4-B10C	1	C8L+	●	PT2,5							=61.L4/10.G
						C8L+	●	PT2,5	-X81	6					=22.Z2.2/20.L
								D-ST2,5							
				=22.Z2.2-K20E	1	C8ML	●	PT2,5	-X81	8					=22.Z2.2/20.M
				=22.Z2.2-K20H	1	C8ML	●	PT2,5							=22.Z2.2/20.Q
				=11.H11-K20E	1	C8ML	●	PT2,5							=11.H11/20.F
				=11.H11-K20H	1	C8ML	●	PT2,5							=11.H11/20.J
				=11.H11-K20K	1	C8ML	●	PT2,5							=11.H11/20.M
				=61.L4-K10F	1	C8ML	●	PT2,5							=61.L4/10.M
								D-ST2,5							
								CLIPFIX35							

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +X3-X1		= XK1	function page 38/50
			design.	PED					+ X3	
			check.					98290 WS450 KL x 5500 CNC Monolith	2953	page 277
change	date	name	norm		originally.	created for.	created by.			

Terminal diagram

terminal connection diagram

+X12-X1

USONIC water supply

=91.S3+Z1-W30F	=91.S3+Z1-W30C	=91.S3-W5D	=01.A1-W30X	cable name	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	cable name	=01.A1+W1-W30X	page/ path
1Z-HF 3x0,75	1Z-HF 3x0,75	1Z-HF 4x1.5	H07V-K 1x16	cable type								cable type	H07V-K 1x16	
			GNYE		=01.A1-PE	PE	PE	,	UT16-PE	+E11-XPE	PE		GNYE	=01.A1/30.X
							PE	,	UT6-PE	=01.A1-PE				=01.A1/36.W
									CLIPFIX35					
							PE	,	UT6-PE	=01.A1-PE				=01.A1/36.X
							PE	,	UT6-PE	=01.A1-PE				=01.A1/36.U
									D-PT 6					
							PE	,	PT2,5-PE	-X97	PE1			=01.A1/31.V
		GNYE			=91.S3-M5D	PE	PE	,	PT2,5-PE	-X97	PE2			=91.S3/5.F
	GNYE				=91.S3-K30D		PE	,	PT2,5-PE					=91.S3/30.C
GNYE					=91.S3-K30G		PE	,	PT2,5-PE					=91.S3/30.G
									D-ST2,5					
					=91.S3-B5L	1	C5L+	,	PT2,5	-X97	5			=91.S3/5.N
									D-ST2,5					
		1			=91.S3-M5D	U1	1	,	PT2,5	-X97	1			=91.S3/5.D
		2			=91.S3-M5D	V1	2	,	PT2,5	-X97	2			=91.S3/5.E
		3			=91.S3-M5D	W1	3	,	PT2,5	-X97	3			=91.S3/5.E
					-X97	4	4	,	PT2,5	=91.S3-B5L	3			=91.S3/5.M
					-X97	6	5	,	PT2,5	=91.S3-B5P	2			=91.S3/5.Q
					-X97	7	6	,	PT2,5	=91.S3-B5P	3			=91.S3/5.S
					-X97	8	7	,	PT2,5	=91.S3-B5P	1			=91.S3/5.T
									CLIPFIX35					
									D-ST2,5					

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +X12-X1		= XK1 + X12	function page 39/50
			design.	PED						
			check.					98290 WS450 KL x 5500 CNC Monolith	2953	page 278
change	date	name	norm		originally.	created for.	created by.			

Terminal diagram

terminal connection diagram

+Z1-X1

terminal strip measuring unit

=91.S1+L1-W1D	=28.C8.1-W51C	=91.S1-W3J	=91.S1+L1-W3E	cable name	cable type	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	cable name	cable type	=91.S1-W3E	=01.A1+L1-W30F	=91.S1-W3C	page/ path
					JZ-HF 4x2,5	TOPSERV 121 8x1,5mm²	ÖZ-J 18x0.5mm²	H07V-K 1x16mm²							H07V-K 1x6mm²	H07V-K 1x16mm²	H07V-K 1x6	
			GNYE			+L1-XPE	PE:b	PE	,	PT 6-PE	=91.S1	+Z1			GNYE			=91.S1/3.E
								PE	,	PT16N-PE	+L1-XPE	PE:b				GNYE		=01.A1/30.F
								PE	,	PT 6-PE	=91.S1	+Z1					GNYE	=91.S1/3.C
								PE	,	UT6-PE	=01.A1-PE							=01.A1/36.M
								PE	,	UT6-PE	=01.A1-PE							=01.A1/36.P
								PE	,	UT6-PE	=01.A1-PE							=01.A1/36.L
										D-PT 6								
								PE	,	PT2,5-PE	=91.S1-T10H	-						=91.S1/10.G
								PE	,									
		GNYE				-X12	PE1	PE	,	PT2,5-PE								=91.S1/3.J
								PE	,	PT2,5-PE	-X46	PE1						=91.S1/3.G
								PE1	,	PT2,5-QUATTRO-PE	-X45	PE1						=01.A1/31.F
								PE	,	PT2,5-PE	=28.Y8.1-T1B	PE						=28.Y8.1/1.E
								PE	,									
	GNYE					=28.C8.1-M2D	PE	PE	,	PT2,5-PE	=28.C8.1-T1C	PE						=28.C8.1/2.J
								PE	,									
								PE	,	PT2,5-PE	=28.C8.1-T1C	PE						=28.C8.1/1.C
								PE	,	PT2,5-PE	-M5D-X50	PE						=91.S7/5.F
								PE	,	PT2,5-PE	=91.S1-T10H	PE						=91.S1/10.L
								PE	,	PT2,5-PE	=91.S1-T10J	PE						=91.S1/10.K
				GNYE		+L1-XPE	PE4	PE	,	PT2,5-PE								=91.S1/10.K
						=91.S1-X800.216	2	C3L+	●	PT2,5								=91.S1/810.S
						=91.S1-X800.117	1	C3L+	●	PT2,5								=91.S1/810.K
						=91.S1-X800.0	1	C3L+	●	PT2,5								=91.S1/810.E
						=28.Y8.1-T1B	1	C3L+	●	PT2,5	-X45	1						=28.Y8.1/1.F
										D-ST2,5								
						=91.S1-X800.216	3	C3ML	●	PT2,5								=91.S1/810.S
						=91.S1-X800.117	5	C3ML	●	PT2,5								=91.S1/810.K
						=91.S1-X800.0	5	C3ML	●	PT2,5								=91.S1/810.E
						=28.Y8.1-T1B	2	C3ML	●	PT2,5	-X45	2						=28.Y8.1/1.F
										D-ST2,5								
						-X45	3	C8L+	,	PT2,5	=91.S1-X800.159	2						=28.C8.1/20.F
	5					=28.C8.1-R2H	-	C8ML	,	PT2,5	-X45	4						=28.C8.1/2.G
										D-ST2,5								

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +Z1-X1	= XK1	function page 40/50
			design.	PED				+ Z1	
			check.				98290 WS450 KL x 5500 CNC Monolith	2953	page 279
change	date	name	norm		originally. created for.	created by.			

Terminal diagram

terminal connection diagram

+Z1-X1

terminal strip measuring unit

=28.C8.1-W51C	=91.S1-W3J	cable name	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	cable name	=91.S1+L1-W1D	page/ path
TOPSERV 121 8x1,5mm²	ÖZ-J 18x0.5mm²	cable type								cable type	JZ-HF 4x2,5	
			=91.S1-F10J	1	D1L		PT2,5	+L1-X1	22:b		1	=91.S1/10.J
			=28.Y8.1-F1C	1	D1L		PT2,5					=28.Y8.1/1.C
							D-ST2,5					
			=28.Y8.1-F1C	3	D1N		PT2,5					=28.Y8.1/1.D
			=91.S1-F10J	3	D1N		PT2,5	+L1-X1	23:b		2	=91.S1/10.J
							D-ST2,5					
			=91.S1-X800.0	2	J10L+		PT2,5	=91.S1-T10H	+			=91.S1/810.F
			=91.S1-X800.117	2	J10L+		PT2,5					=91.S1/810.M
			=28.Y8.1-T1B-X2	6	J10L+		PT2,5	=28.Y8.1-T1B-X2	10			=91.S1/810.W
							D-ST2,5					
			=91.S1-X800.0	3	J10ML		PT2,5	=91.S1-T10H	-			=91.S1/810.F
			=91.S1-X800.117	3	J10ML		PT2,5					=91.S1/810.N
			=28.Y8.1-T1B-X2	1	J10ML		PT2,5					=91.S1/810.X
							D-ST2,5					
			=28.Y8.1-T1B	1	X10L+		PT2,5	-X45	9			=28.Y8.1/1.H
			=28.Y8.1-T1B	4	X10L+		PT2,5					=28.Y8.1/1.K
							D-ST2,5					
			=28.Y8.1-T1B	2	X10ML		PT2,5	-X45	10			=28.Y8.1/1.J
			=28.Y8.1-T1B	5	X10ML		PT2,5					=28.Y8.1/1.L
							D-ST2,5					
							D-ST2,5					
	2		-X12	A2	1		PT2,5	-X45	14			=91.S1/20.D
	7		-X12	A7	2		PT2,5	-X45	13			=91.S1/20.D
					3		PT2,5					=91.S1/20.E
1			=28.C8.1-M2D	U	4		PT2,5	=28.C8.1-T1C	U			=28.C8.1/2.D
2			=28.C8.1-M2D	V	5		PT2,5	=28.C8.1-T1C	V			=28.C8.1/2.D
3			=28.C8.1-M2D	W	6		PT2,5	=28.C8.1-T1C	W			=28.C8.1/2.E
4			=28.C8.1-Q2F	1	7		PT2,5	=91.S1-X800.159	1			=28.C8.1/2.F
SH			=28.C8.1-M2D	PE	8		PT2,5		SH			=28.C8.1/2.S
6			=28.C8.1-R2R	1	9		PT2,5	=28.C8.1-T1C	AVI			=28.C8.1/2.R
7			=28.C8.1-R2R	2	10		PT2,5	=28.C8.1-T1C	ACM			=28.C8.1/2.S
					11		PT2,5	=28.C8.1-T1C	RC			=28.C8.1/10.S
			=91.S1-X800.7	6	12		PT2,5	=28.C8.1-T1C	M01			=28.C8.1/10.V
			=28.C8.1-T1C	24V	13		PT2,5	=91.S1-X800.163	2			=28.C8.1/20.J
					14		PT2,5	=91.S1-X800.163	6			=28.C8.1/20.L

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +Z1-X1	= XK1	function page 41/50
			design.	PED				+ Z1	
			check.				98290 WS450 KL x 5500 CNC Monolith	2953	page 280
change	date	name	norm		originally. created for.	created by.			

Terminal diagram

=91.S2-W2E

cable name

terminal connection diagram

+Z1-X1

terminal strip measuring unit

cable name

JZ-HF 3x1,5

cable type

designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	page/ path
		15		PT2,5	=91.S1-X800.164	2	=28.C8.1/20.P
		16		PT2,5	=91.S1-X800.164	6	=28.C8.1/20.S
		17		PT2,5	=91.S1-X800.165	2	=28.C8.1/20.U
		18		PT2,5	=91.S1-X800.165	6	=28.C8.1/20.X
=91.S2-G2C	IN:-	19		PT4	-X45	12	=91.S2/2.D
=91.S2-G2C	IN:+	20		PT4	-X45	11	=91.S2/2.C
				D-ST2,5			

cable type

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +Z1-X1	= XK1 + Z1	function page 42/50
			design.	PED					
			check.					98290 WS450 KL x 5500 CNC Monolith	2953
change	date	name	norm		originally. / created for.	created by.			page 281

Terminal diagram

terminal connection diagram

+Z1-X2

measuring gauge

=91.S1-W20D1	=28.Y8.3-W1G2	cable name												cable name	=28.Y8.3-W1G1	=91.S1-W20D1	page/ path
ÖZ-J 4x0,5mm²	4 ++4x0,14 + 0,34	cable type	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection					cable type	8x	ÖZ-J 4x0,5mm²	
					PE	,	PT 6-PE	-X12	PE1								=91.S1/3.J
						,											
	WH		=28.Y8.3-B1G-X1	1	1	,		-X49	1						WH		=28.Y8.3/1.K
	BU		=28.Y8.3-B1G-X1	2	2	,		-X49	2						BU		=28.Y8.3/1.J
	GY		=28.Y8.3-B1G-X1	3	3	,		-X49	3						GY		=28.Y8.3/1.H
	PK		=28.Y8.3-B1G-X1	4	4	,		-X49	4						PK		=28.Y8.3/1.H
	WH/GN		=28.Y8.3-B1G-X1	5	5	,		-X49	5						WH/GN		=28.Y8.3/1.L
	YE		=28.Y8.3-B1G-X1	6	6	,		-X49	6						YE		=28.Y8.3/1.J
	VT		=28.Y8.3-B1G-X1	7	7	,		-X49	7						VT		=28.Y8.3/1.J
	BN/GN		=28.Y8.3-B1G-X1	8	8	,		-X49	8						BN/GN		=28.Y8.3/1.K
					9	,											=28.Y8.3/1.L
1			=91.S1-B20D1	BN	20	,		-X9	2								=91.S1/20.D
			=91.S1-B20D1	BU	21	,		-X12	A2							2	=91.S1/20.D
			=91.S1-B20D1	BK	22	,	D-ST2,5	-X12	A1								=91.S1/20.E

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +Z1-X2		= XK1	function page 43/50
			design.	PED					+ Z1	
			check.					98290 WS450 KL x 5500 CNC Monolith	2953	page 282
change	date	name	norm		originally.	created for.	created by.			

Terminal diagram

terminal connection diagram

+Z1-X3

measuring gauge

cable name	cable type	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	cable name	cable type	page/ path
=91.S1-W3G	JZ-603 / OZ-603 18x2,5								=91.S1-W10C	ÖZ-J 4x0,5mm²	
									=91.S1-W10F	ÖZ-J 4x0,5mm²	
									=91.S1-W10J	ÖZ-J 4x0,5mm²	
									=91.S1-W10L	ÖZ-J 4x0,5mm²	
									=91.S1-W10P	ÖZ-J 4x0,5mm²	
	GNYE	-X46	PE1	PE							=91.S1/3.G
	3	-X46	3	D10L+			=28.C8.1-B10D	BN		2	=28.C8.1/10.C
				D10L+			=28.C8.1-B10F	BN		2	=28.C8.1/10.F
				D10L+			=28.C8.1-B10J	BN		2	=28.C8.1/10.J
				D10L+			=28.C8.1-B10M	BN		2	=28.C8.1/10.L
				D10L+			=28.C8.1-B10Q	BN		2	=28.C8.1/10.P
	4	-X46	4	E10ML			=28.C8.1-B10D	BU		3	=28.C8.1/10.D
				E10ML			=28.C8.1-B10F	BU		3	=28.C8.1/10.F
				E10ML			=28.C8.1-B10J	BU		3	=28.C8.1/10.J
				E10ML			=28.C8.1-B10M	BU		3	=28.C8.1/10.M
				E10ML			=28.C8.1-B10Q	BU		3	=28.C8.1/10.Q
	5	-X46	5	5			=28.C8.1-B10D	BK		1	=28.C8.1/10.C
	6	-X46	6	6			=28.C8.1-B10F	BK		1	=28.C8.1/10.F
	7	-X46	7	7			=28.C8.1-B10J	BK		1	=28.C8.1/10.H
	8	-X46	8	8			=28.C8.1-B10M	BK		1	=28.C8.1/10.L
	9	-X46	9	9			=28.C8.1-B10Q	BK		1	=28.C8.1/10.P

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +Z1-X3	= XK1	function page 44/50
			design.	PED				+ Z1	
			check.				98290 WS450 KL x 5500 CNC Monolith	2953	page 283
change	date	name	norm		originally. / created for.	created by.			

Terminal diagram

terminal connection diagram

+Z1-X4

terminal strip measuring unit

| =91.S1-W20D2 | =28.Y8.4-W1G2 | cable name | | |

Terminal diagram

terminal connection diagram

+Z1-X9

cable name	cable type	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	cable name	cable type	page/ path
		=91.S1-S20C-S20D4	NC	1	,		-X4	11			=91.S1/20.D
		-X4	15	2	,		-X2	20			=91.S1/20.D
		-X4	14	3	,		-X4	12			=91.S1/20.D

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +Z1-X9		= XK1	function page
			design.	PED					+ Z1	46/50
			check.					98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.			285

Terminal diagram

terminal connection diagram

+Z2-X1

terminal strip USONIC

cable type	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	cable type	page/ path
			PE		UT6-PE	=01.A1-PE			=01.A1/36.W
					CLIPFIX35				
			PE		UT6-PE	=01.A1-PE			=01.A1/36.X
			PE		UT6-PE	=01.A1-PE			=01.A1/36.U
					D-PT 6				
	=91.S3-G2C	INPUT AC:PE	PE1		PT2,5-QUATTRO-PE	=91.S3-E4C	Geh		=91.S3/2.F
	=91.S3-G3R					=91.S3-X10.0	4		
			PE2		PT2,5-QUATTRO-PE				=91.S3/2.M
					D-ST2,5-QUATTRO				
			C2ML1		PT2,5-QUATTRO	=91.S3-G2C	Output DC:-		=91.S3/2.E
						=91.S3-F4D	0V		
						=91.S3-E4C	4-		
						=91.S3-X10.0	5		
			C2ML2		PT2,5-QUATTRO	=91.S3-X10.0	3		=91.S3/15.F
					D-ST2,5-QUATTRO				
	=91.S3-X10.5	2	D25.1						=91.S3/21.D
	=91.S3-X10.6	2							
	=91.S3-X10.6	6							
	=91.S3-X10.7	6	D25.2		PT2,5-QUATTRO	=91.S3-X10.7	2		=91.S3/21.Q
	=91.S3-X10.8	6	D25.3		PT2,5-QUATTRO	=91.S3-X10.8	2		=91.S3/21.U
					D-ST2,5-QUATTRO				
	=91.S3-K3B	0V	L2ML1		PT2,5-QUATTRO	=91.S3-T2L	-		=91.S3/2.L
					D-ST2,5-QUATTRO				
	-X40	1	U8L1		PT2,5-QUATTRO				=91.S3/2.D
	=91.S3-F2D	1			D-ST2,5-QUATTRO				
	=91.S3-F2L	1							
	=91.S3-G3R								
	-X40	2	U8N1		PT2,5-QUATTRO				=91.S3/2.E
	=91.S3-G2C	Input AC:N			D-ST2,5-QUATTRO				
	=91.S3-T2L	N(-)			CLIPFIX35				
	=91.S3-G3R								

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +Z2-X1	= XK1	function page 47/50
			design.	PED				+ Z2	
			check.				98290 WS450 KL x 5500 CNC Monolith	2953	page 286
change	date	name	norm		originally. created for.	created by.			

Terminal diagram

terminal connection diagram

+Z13-X1

terminal strip RSIS/RSLD

=91.S5+Z1-W13E	=91.S7-W11B	cable name	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	cable name	=91.S7-W11B	page/ path
ÖZ-J 3x0,75	JZ-HF 18x1	cable type	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	cable type	JZ-HF 18x1	page/ path
			=91.S5-A60	PE	PE		PT16N-PE					=91.S5/10.B
							CLIPFIX35					
					PE		UT6-PE	=01.A1-PE				=01.A1/36.S
					PE		UT6-PE	=01.A1-PE				=01.A1/36.T
					PE		UT6-PE	=01.A1-PE				=01.A1/36.Q
				SH	PE1		PT2,5-QUATTRO-PE	-X60	PE1			=01.A1/35.X
	GNYE		+Z1-X48	PE2								
					PE2		PT2,5-QUATTRO-PE	=01.A1-X8J	PE			=01.A1/8.J
								-X59	PE1			
GNYE			=91.S5+Z1-K20F	PE	PE4							=91.S5/13.F
					C3L+1		PT2,5-QUATTRO	-X60	1			=91.S5/15.D
							D-ST2,5-QUATTRO	=91.S5-X15.0	1			
								=91.S5-X15.7	1			
					C3ML1		PT2,5-QUATTRO	-X60	2			=91.S5/15.E
							D-ST2,5-QUATTRO	=91.S5-X15.0	5			
								=91.S5-X15.7	5			
			=91.S5-X15.2	2	C5L+1		PT2,5-QUATTRO	-X60	5			=91.S5/15.K
								+Z1-X48	5		5	
					C5L+2		PT2,5-QUATTRO	+Z1-X48	8		8	=91.S3/20.V
							D-ST2,5-QUATTRO					
			=91.S5-X15.2	3	C5ML+1		PT2,5-QUATTRO	-X60	6			=91.S5/15.K
			=91.S5-X15.8	2								
	7		+Z1-X48	7								
			=91.S5-X15.10	3	C5ML2		PT2,5-QUATTRO	+Z1-X48	9		9	=91.S3/20.W
			=91.S5-X15.10	7			D-ST2,5-QUATTRO					
					C11L+1		PT2,5-QUATTRO					=6+Z2 (+Z13 RSIS/RSLD.Z13
							D-ST2,5-QUATTRO					
					C6L+1		PT2,5-QUATTRO	-X60	3			=91.S5/15.F
							D-ST2,5-QUATTRO	=91.S5-X15.0	2			
					C6ML1		PT2,5-QUATTRO	-X60	4			=91.S5/15.F
							D-ST2,5-QUATTRO	=91.S5-X15.0	3			
					E8L+1		PT2,5-QUATTRO					=01.A1/8.E
							D-ST2,5-QUATTRO					
			=01.A1-X8J	L1	H8L+1		PT2,5-QUATTRO	-X59	3			=01.A1/8.J
			=91.S5-G2G	L			D-ST2,5-QUATTRO					

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +Z13-X1	= XK1	function page 48/50
			design.	PED				+ Z13	
			check.					98290 WS450 KL x 5500 CNC Monolith	page 2953
change	date	name	norm		originally. created for.	created by.			287

Terminal diagram

terminal connection diagram

+Z13-X1

terminal strip RSIS/RSLD

cable type	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	cable type	page/ path
	=91.S5-G2Q	L	H8L+2		PT2,5-QUATTRO	=91.S5-G2L	L		=91.S5/8.L
					D-ST2,5-QUATTRO				
			E8ML1		PT2,5-QUATTRO				=01.A1/8.F
					D-ST2,5-QUATTRO				
	=01.A1-X8J	N	H8ML1		PT2,5-QUATTRO	-X59	4		=01.A1/8.J
	=91.S5-G2G	N			D-ST2,5-QUATTRO				
	=91.S5-G2L	N	H8ML2		PT2,5-QUATTRO				=91.S5/8.M
	=91.S5-G2Q	N			D-ST2,5-QUATTRO				
	-X61	8	L11L+		PT2,5-QUATTRO	=91.S5-F11D	2		=91.S5/9.D
					D-ST2,5-QUATTRO				
	-X61	11	M11ML		PT2,5-QUATTRO	=91.S5-G2G	-		=91.S5/9.F
					D-ST2,5-QUATTRO				
	=91.S5-X15.4	6	S11L+		PT2,5-QUATTRO	=91.S5-F11K	LOAD+		=91.S5/9.L
					D-ST2,5-QUATTRO	-X61	10		
	-X61	9	V11ML		PT2,5-QUATTRO	=91.S5+Z1-F11V	4.1		=91.S5/9.Q
					D-ST2,5-QUATTRO				
	=91.S5+Z1-K20F	2	7		PT2,5	=91.S5-X15.6	5		=91.S5/13.F
	=91.S5+Z1-K20F	1	8		PT2,5	=91.S5-X15.6	6		=91.S5/13.G
					D-ST2,5				
					CLIPFIX35				

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +Z13-X1	= XK1 + Z13	function page 49/50
			design.	PED					
			check.				98290 WS450 KL x 5500 CNC Monolith	2953	page 288
change	date	name	norm		originally.	created for.	created by.		

Terminal diagram

terminal connection diagram

+Z13-X61

RSIS supply

cable name: =91.S5-S5-W94

cable type	designation of aim	connection	terminal number	bridges	terminal type	designation of aim	connection	cable type (TOPGEBER 512 19x0.15)	page/ path
			1			=91.S5-A60-S3-X1	1	BNRD	=91.S5/10.C
			14			=91.S5-A60-S3-X1	14	BN	=91.S5/10.T
			2			=91.S5-A60-S3-X1	2	BNBU	=91.S5/10.D
						=91.S5-X15.4	5		
			15			=91.S5-A60-S3-X1	15	GN	=91.S5/10.L
			7			=91.S5-A60-S3-X1	7	GY	=91.S5/10.G
			3			=91.S5-A60-S3-X1	3		=91.S5/10.W
			4			=91.S5-A60-S3-X1	4	RD	=91.S5/10.U
			5			=91.S5-A60-S3-X1	5	OG	=91.S5/10.U
			6			=91.S5-A60-S3-X1	6	YE	=91.S5/10.K
			8			=91.S5-A60-S3-X1	8	GNBK	=91.S5/10.N
						-X1	L11L+:b		
			9			=91.S5-A60-S3-X1	9	GNRD	=91.S5/10.P
						-X1	V11ML:b		
			10			=91.S5-A60-S3-X1	10	BNYE	=91.S5/10.Q
						-X1	S11L+:b		
			11			=91.S5-A60-S3-X1	11	BNGY	=91.S5/10.Q
						-X1	M11ML:b		
			12			=91.S5-A60-S3-X1	12	BU	=91.S5/10.F
			13			=91.S5-A60-S3-X1	13	WHYE	=91.S5/10.V
			16			=91.S5-A60-S3-X1	16	WHBK	=91.S5/10.H
			17			=91.S5-A60-S3-X1	17	BK	=91.S5/10.S

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	terminal diagram +Z13-X61	= XK1 + Z13	function page 50/50
			design.	PED					
			check.					98290 WS450 KL x 5500 CNC Monolith	2953
change	date	name	norm		originally. / created for.	created by.			page 289

connector diagram

function text							=01.A1+W1-W32X	cable name	terminal connection diagram +E2-X10							cable name	=01.A1+W1-W32X								page/ path
							JZ-HF 7x1,5	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	JZ-HF 7x1,5								
							1		+E11-X10	1	1			-X1	1:a										=01.A1+E11/8
							2		+E11-X10	2	2			-X1	4:a										=01.A1+E11/8
											3														
											4														
											5														
											6														
									-X1	PE:a	PE1			+E11-X10	PE1		GNYE								=01.A1+E11/31
											PE2														

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connector diagram

function text							=01.A2+W1-W32Y	cable name	terminal connection diagram +E2-X11							cable name									page/ path
							JZ-HF 7x0,75	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type									
							1		+E13-X11	1	1			-X1	N9L+:a										=01.A2+E11/9
							2		+E13-X11	2	2			-X1	N9ML:a										=01.A2+E11/9
											3														
											4														
											5														
											6														
											PE1														
											PE2														

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connector diagram

function text	cable name	cable type	terminal connection diagram +E3-X20 designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable name	cable type	=01.A1+W1-W32Z JZ-HF 7x1,5	page/ path
			-X1	1:a	1			+E11-X20	1			1	=01.A1+E11/8
			-X1	3:a	2			+E11-X20	2			2	=01.A1+E11/8
					3								
					4								
					5								
					6								
			-X1	PE:a	PE1			+E13-X11	PE1			GNYE	=01.A1+E11/31
					PE2								

Created with a trial version of Syncfusion PDF library.

connector diagram

function text							=01.A1+W1-W32X	cable name	terminal connection diagram +E11-X10							cable name									page/ path
							JZ-HF 7x1,5	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type									
							1		+E2-X10	1	1			=01.A1-F8C	2										=01.A1+E11/8
							2		+E2-X10	2	2			-X4	L2N:b										=01.A1+E11/8
											3														
											4														
											5														
											6														
							GNYE		+E2-X10	PE1	PE1			=01.A1-PE											=01.A1+E11/31
											PE2														

Created with a trial version of Syncfusion PDF library.

3 5

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +E11-X10	1	= XS1 + E11	function page 4/130
			design.	PED						
			check.				09 33 006 2648 09 33 006 2748	98290 WS450 KL x 5500 CNC Monolith	2953	page 293
change	date	name	norm		originally.	created for.	created by.			

connector diagram

function text							=01.A1+W1-W32Z	cable name	terminal connection diagram +E11-X20							cable name									page/ path
							JZ-HF 7x1,5	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type									
							1		+E3-X20	1	1			=01.A1-F8V	2										=01.A1+E11/8
							2		+E3-X20	2	2			-X4	L2N:b										=01.A1+E11/8
											3														
											4														
											5														
											6														
											PE1														
											PE2														

Created with a trial version of Syncfusion PDF library.

4 6

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +E11-X20	2	= XS1	function page	
			design.	PED					+ E11	5/130	
			check.				09 33 006 2648	98290		page	
change	date	name	norm		originally.	created for.	created by.	09 33 006 2748	WS450 KL x 5500 CNC Monolith	2953	294

connector diagram

function text							=01.A1+W1-W31B	cable name	terminal connection diagram +E11-X40 energy carriage							cable name									page/ path
							JZ-HF 34x1,5	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type									
							1		+S1-X40	1	1			=01.A1-F7P	2										=01.A1+E11/7
							2		+S1-X40	2	2			-X4	C2N:b										=01.A1+E11/7
							3		+S1-X40	3	3			=01.A1-F7T	2										=01.A1+E11/7
							4		+S1-X40	4	4			-X4	L2N:b										=01.A1+E11/7
							5		+S1-X40	5	5			=21.C1.2-Q7W	2/T1										=21.C1.2+E11/7
							6		+S1-X40	6	6			=21.C1.2-Q7W	4/T2										=21.C1.2+E11/7
							7		+S1-X40	7	7			=21.C1.2-Q7W	6/T3										=21.C1.2+E11/7
							8		+S1-X40	8	8			=21.C1.2-Q8W	4/T2										=21.C1.2+E11/8
							9		+S1-X40	9	9			=21.C1.2-Q8W	2/T1										=21.C1.2+E11/8
							10		+S1-X40	10	10			=21.C1.2-Q8W	6/T3										=21.C1.2+E11/8
							11		+S1-X40	11	11			=21.X1.1-Q5W	4/T2										=21.X1.1+E11/5
							12		+S1-X40	12	12			=21.X1.1-Q5W	2/T1										=21.X1.1+E11/5
							13		+S1-X40	13	13			=21.X1.1-Q5W	6/T3										=21.X1.1+E11/5
							14		+S1-X40	14	14			=21.Z1.1-Q6W	4/T2										=21.Z1.1+E11/6
							15		+S1-X40	15	15			=21.Z1.1-Q6W	2/T1										=21.Z1.1+E11/6
							16		+S1-X40	16	16			=21.Z1.1-Q6W	6/T3										=21.Z1.1+E11/6
							17		+S1-X40	17	17			=81.P9-K20E	14										=61.L6+E11/1
							18		+S1-X40	18	18			=21.C1.2+E12-Q4D	A2										=61.L6+E11/1
							19		+S1-X40	19	19			=28.C8.1-Q1W	2/T1										=28.C8.1+Z1/1
							20		+S1-X40	20	20			=28.C8.1-Q1W	4/T2										=28.C8.1+Z1/1
							21		+S1-X40	21	21			=28.C8.1-Q1W	6/T3										=28.C8.1+Z1/1
							22		+S1-X40	22	22			=01.A1-F8E	2										=01.A1+E11/8
							23		+S1-X40	23	23			-X4	C2N:b										=01.A1+E11/8
							24		+S1-X40	24	24			=01.A1-F8H	2										=01.A1+E11/8
							25		+S1-X40	25	25			-X4	L2N:b										=01.A1+E11/8
											26														
											27														
											28														
											29														
											30														
											31														
											32														
							GNYE		+S1-X40	PE1	PE1														=01.A1+E11/31
											PE2														

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +E11-X40	3	= XS1	function page
			design.	PED						+ E11	6/130
			check.					09320323101	98290	2953	page
change	date	name	norm		originally.	created for.	created by.	09320323001	WS450 KL x 5500 CNC Monolith		295

connector diagram

function text							=01.A1+W1-W31J	cable name	terminal connection diagram +E11-X80 energy headstock							cable name									page/ path
							JZ-HF 18x1,5	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type									
							1		+S1-X80	1	1			=21.Z1.1-Q5W	4/T2										=21.Z1.1+E11/5
							2		+S1-X80	2	2			=21.Z1.1-Q5W	2/T1										=21.Z1.1+E11/5
							3		+S1-X80	3	3			=21.Z1.1-Q5W	6/T3										=21.Z1.1+E11/5
							4		+S1-X80	4	4			=22.C2.1-Q4W	2/T1										=22.C2.1+E11/4
							5		+S1-X80	5	5			=22.C2.1-Q4W	4/T2										=22.C2.1+E11/4
							6		+S1-X80	6	6			=22.C2.1-Q4W	6/T3										=22.C2.1+E11/4
							7		+S1-X80	7	7			=11.H11-Q1W	4/T2										=11.H11+E11/1
							8		+S1-X80	8	8			=11.H11-Q1W	2/T1										=11.H11+E11/1
							9		+S1-X80	9	9			=11.H11-Q1W	6/T3										=11.H11+E11/1
							10		+S1-X80	10	10			=61.L3-Q1W	2/T1										=61.L3+E11/1
							11		+S1-X80	11	11			=61.L3-Q1W	4/T2										=61.L3+E11/1
							12		+S1-X80	12	12			=61.L3-Q1W	6/T3										=61.L3+E11/1
											13														
											14														
											15														
											16														
							GNYE		+S1-X80	PE1	PE1			=01.A1-PE											=01.A1+E11/31
											PE2														

Created with a trial version of Synchution PBE library.

6 8

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +E11-X80	4	= XS1	function page
			design.	PED						+ E11	7/130
			check.					09 33 016 2648	98290	2953	page
change	date	name	norm		originally.	created for.	created by.	09330162748	WS450 KL x 5500 CNC Monolith		296

connector diagram

function text							=01.A1+W1-W31P	cable name	terminal connection diagram +E11-X85 energy tailstock							cable name									page/ path
							JZ-HF 18x1,5	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type									
							1		+S1-X85	1	1			=25.Z5.1-Q4W	4/T2										=25.Z5.1+E11/4
							2		+S1-X85	2	2			=25.Z5.1-Q4W	2/T1										=25.Z5.1+E11/4
							3		+S1-X85	3	3			=25.Z5.1-Q4W	6/T3										=25.Z5.1+E11/4
											4														
											5														
											6														
											7														
											8														
											9														
											10														
											11														
											12														
											13														
											14														
											15														
											16														
							GNYE		+S1-X85	PE1	PE1														=01.A1+E11/31
											PE2														

Created with a trial version of Syncfusion PDF library.

connector diagram

function text							=01.A1+W1-W32U	cable name	terminal connection diagram +E11-X90 energy water supply							cable name									page/ path
							JZ-HF 18x1,5	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type									
							1		+X1-X90	1	1			=61.L1+E12-Q1W	2/T1										=61.L1+E11/1
							2		+X1-X90	2	2			=61.L1+E12-Q1W	4/T2										=61.L1+E11/1
							3		+X1-X90	3	3			=61.L1+E12-Q1W	6/T3										=61.L1+E11/1
							4		+X1-X90	4	4			=61.L1+E12-Q2W	2/T1										=61.L1+E11/2
							5		+X1-X90	5	5			=61.L1+E12-Q2W	4/T2										=61.L1+E11/2
							6		+X1-X90	6	6			=61.L1+E12-Q2W	6/T3										=61.L1+E11/2
							7		+X1-X90	7	7			=61.L1+E12-Q2J	2										=61.L1+E11/2
							8		+X1-X90	8	8			=61.L1+E12-Q2J	4										=61.L1+E11/2
							9		+X1-X90	9	9			=61.L1+E12-Q2J	6										=61.L1+E11/2
							10		+X1-X90	10	10			=61.L14-Q1U	4/T2										=61.L14+E11/1
							11		+X1-X90	11	11			=61.L14-Q1U	6/T3										=61.L14+E11/1
											12														
											13														
											14														
											15														
											16														
							GNYE		+X1-X90	PE1	PE1			=01.A1-PE											=01.A1+E11/31
											PE2														

Created with a trial version of Synchudion PDF Library.

8 10

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +E11-X90	6	= XS1	function page
			design.	PED					+ E11	9/130
			check.				09330162748	98290	2953	page
change	date	name	norm		originally.	created for.	created by.	09 33 016 2648	WS450 KL x 5500 CNC Monolith	298

connector diagram

function text						=01.A1+W1-W32Z	=01.A2+W1-W32Y	cable name	terminal connection diagram +E13-X11							cable name									page/ path
						JZ-HF 7x1,5	JZ-HF 7x0,75	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type									
							1		+E2-X11	1	1			=01.A2-F9N	LOAD+										=01.A2+E11/9
							2		+E2-X11	2	2			-X5	K1ML:b										=01.A2+E11/9
											3														
											4														
											5														
											6														
						GNYE			+E3-X20	PE1	PE1			=01.A1+E11-PE											=01.A1+E11/31
											PE2														

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +E13-X11	1	= XS1	function page 10/130
			design.	PED						+ E13	
			check.					09 33 006 2648	98290	2953	page 299
change	date	name	norm		originally.	created for.	created by.	09 33 006 2748	WS450 KL x 5500 CNC Monolith		

connector diagram

function text							=01.A1+W1-W31D	cable name	terminal connection diagram +E13-X45 control carriage							cable name									page/ path
							JZ-HF 50x1	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type									
							1		+S1-X45	A01	A01			-X5.1	C3L+2:a										=01.A2+E11/3
							2		+S1-X45	A02	A02			-X5.1	C3ML2:a										=01.A2+E11/3
							3		+S1-X45	A03	A03			-X5.1	C3L+2:b										=01.A2+E11/3
							4		+S1-X45	A04	A04			-X5.1	C3ML2:b										=01.A2+E11/3
							5		+S1-X45	A05	A05			-X5.1	C5L+2:b										=01.A2+E11/5
							6		+S1-X45	A06	A06			-X5.1	C5ML2:a										=01.A2+E11/5
							7		+S1-X45	A07	A07			-X5.1	C5L+2:c										=01.A2+E11/5
							8		+S1-X45	A08	A08			-X5.1	C5ML2:b										=01.A2+E11/5
							9		+S1-X45	A09	A09			-X5.1	C5L+2:d										=01.A2+E11/5
							10		+S1-X45	A10	A10			-X5.1	C5ML2:d										=01.A2+E11/5
							11		+S1-X45	A11	A11			-X5.1	C6L+2:b										=01.A2+E11/6
							12		+S1-X45	A12	A12			-X5.1	C6ML2:a										=01.A2+E11/6
							13		+S1-X45	A13	A13			-X5.1	C6L+2:c										=01.A2+E11/6
							14		+S1-X45	A14	A14			-X5.1	C6ML2:b										=01.A2+E11/6
							15		+S1-X45	A15	A15			=01.A2-F7C	LOAD+										=01.A2+E11/7
							16		+S1-X45	A16	A16			-X5	C1ML:b										=01.A2+E11/7
							17		+S1-X45	B01	B01			-X5.1	C8L+2:a										=01.A2+E11/8
							18		+S1-X45	B02	B02			-X5.1	C8ML2:a										=01.A2+E11/8
							19		+S1-X45	B03	B03			-X5.1	C8L+2:b										=01.A2+E11/8
							20		+S1-X45	B04	B04			-X5.1	C8ML2:b										=01.A2+E11/8
							21		+S1-X45	B05	B05			=01.A2-F9U	LOAD+										=01.A2+E11/9
							22		+S1-X45	B06	B06			-X5	K1ML:a										=01.A2+E11/9
							23		+S1-X45	B07	B07			-X5.1	C11L+1:b										=01.A2+E13/11
							24		+S1-X45	B08	B08			-X5.1	C11ML1:b										=01.A2+E13/11
							25		+S1-X45	B09	B09			-X5.1	C11L+1:c										=01.A2+E13/11
							26		+S1-X45	B10	B10			-X5.1	C11ML1:c										=01.A2+E13/11
							27		+S1-X45	B11	B11			-X65	6										=01.A3+E11/1
							28		+S1-X45	B12	B12			-X81	B01										=01.A3+E11/1
							29		+S1-X45	B13	B13			-X65	8										=01.A3+E11/1
							30		+S1-X45	B14	B14			-X81	B03										=01.A3+E11/1
							31		+S1-X45	B15	B15			-X5.1	C4L+4:a										=01.A3+E11/10
							32		+S1-X45	B16	B16			-X86	21										=01.A3+E11/10
							33		+S1-X45	C01	C01			-X5.1	C4L+4:b										=01.A3+E11/10
							34		+S1-X45	C02	C02			-X2.1	2:a										=01.A3+E11/10
							35		+S1-X45	C03	C03			-X5.1	C4L+3:a										=01.A3+E11/11

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +E13-X45	2	= XS1	function page
			design.	PED						+ E13	11/130
			check.					Z5.574.2453.0	98290	2953	page
change	date	name	norm		originally.	created for.	created by.	09 21 064 3001	WS450 KL x 5500 CNC Monolith		300

connector diagram

function text							=01.A1+W1-W31D	cable name	terminal connection diagram +E13-X45 control carriage							cable name									page/ path
							JZ-HF 50x1	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type									
							36		+S1-X45	C04	C04			=01.A3-K6B-XA1	1										=01.A3+E11/11
							37		+S1-X45	C05	C05			=01.A3-K6B-XA1	2										=01.A3+E11/11
							38		+S1-X45	C06	C06			=01.A3-K5B-X1	13										=01.A3+E11/11
							39		+S1-X45	C07	C07			-X5.1	C4ML1:c										=01.A3+E11/11
							40		+S1-X45	C08	C08			=01.A3-K5B-X1	1										=01.A3+E11/11
							41		+S1-X45	C09	C09			=01.A3-K5B-X1	2										=01.A3+E11/11
							42		+S1-X45	C10	C10			-X5.1	C3L+9:a										=21.X1.1+E11/4
							43		+S1-X45	C11	C11			=21.X1.1-K4M	A1										=21.X1.1+E11/4
							44		+S1-X45	C12	C12			=01.A3-K5B-X1	3										=01.A3+E11/11
							45		+S1-X45	C13	C13			=01.A3-K5B-X1	4										=01.A3+E11/11
							46		+S1-X45	C14	C14			=01.A3-K5B-X1	15										=01.A3+E11/11
									+S1-X45	C15	C15			=01.A3-K3E	74										=91.S1+Z1/1
									+S1-X45	C16	C16			=01.A3-K3E	84										=91.S1+Z1/1
											D01														
											D02														
											D03														
											D04														
											D05														
											D06														
											D07														
											D08														
											D09														
											D10														
											D11														
											D12														
											D13														
											D14														
											D15														
											D16														
							GNYE		+S1-X45	PE1	PE1														=01.A1+E11/31
											PE2														

Created with a trial version of Synchudion PDF library.

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +E13-X45	3	= XS1	function page	
			design.	PED					+ E13	12/130	
			check.				Z5.574.2453.0	98290	2953	page	
change	date	name	norm		originally.	created for.	created by.	09 21 064 3001	WS450 KL x 5500 CNC Monolith		301

connector diagram

function text							=01.A1+W1-W31T	cable name	terminal connection diagram +E13-X65 control panel							cable name									page/ path
							JZ-HF 18x1,5	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type									
							1		+S1-X65	1	1			=01.A2-F9C	LOAD+										=01.A2+E11/9
							2		+S1-X65	2	2			-X5	K1ML:a										=01.A2+E11/9
							3		+S1-X65	3	3			=01.A2-F9C	LOAD+										=01.A2+E11/9
							4		+S1-X65	4	4			-X5	K1ML:a										=01.A2+E11/9
							5		+S1-X65	5	5			-X2	34:b										=01.A3+E11/1
							6		+S1-X65	6	6			-X45	B11										=01.A3+E11/1
							7		+S1-X65	7	7			-X2	36:b										=01.A3+E11/1
							8		+S1-X65	8	8			-X45	B13										=01.A3+E11/1
											9														
											10														
											11														
											12														
											13														
											14														
											15														
											16														
							GNYE		+S1-X65	PE1	PE1			=01.A1+E11-PE											=01.A1+E11/31
											PE2														

Created with a trial version of Syncfusion PDF library.

12 14

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +E13-X65	4	= XS1	function page
			design.	PED						+ E13	13/130
			check.					09330162748	98290	2953	page
change	date	name	norm		originally.	created for.	created by.	09 33 016 2648	WS450 KL x 5500 CNC Monolith		302

connector diagram

terminal connection diagram

+E13-X68

handwheel plug-in station grinding support

function text	=81.P11+S1-W1E1	=81.P11+W1-W1E1	cable name / cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable name / cable type	page/ path
		BU		+S1-X68	A01	A01			-X8	1:2		=01.A3+E11/1
	VT			+S1-X68	A02	A02			-X8	2:2		=01.A3+E11/1
		RD		+S1-X68	A03	A03			-X8	3:2		=01.A3+E11/1
	BK			+S1-X68	A04	A04			-X8	4:2		=01.A3+E11/1
		RDBU		+S1-X68	A05	A05			-X8	5:2		=81.P11+L1/1
		WHYE		+S1-X68	A06	A06			-X8	6:2		=81.P11+L1/1
		WHGN		+S1-X68	A07	A07			-X8	7:2		=81.P11+L1/1
		BNGN		+S1-X68	A08	A08			-X8	8:2		=81.P11+L1/1
		YEBN		+S1-X68	A09	A09		I0.7	-X8	9:2		=81.P11+L1/1
		WHGY		+S1-X68	A10	A10		I1.0	-X8	10:2		=81.P11+L1/1
		GYBN		+S1-X68	A11	A11		I1.1	-X8	11:2		=81.P11+L1/1
		WHPK		+S1-X68	A12	A12		I1.2	-X8	12:2		=81.P11+L1/1
		GYPK		+S1-X68	A13	A13			-X8	13:2		=81.P11+L1/1
		PKBN		+S1-X68	A14	A14		I1.3	-X8	14:2		=81.P11+L1/1
		WHBU		+S1-X68	A15	A15		I1.4	-X8	15:2		=81.P11+L1/1
		BNBU		+S1-X68	A16	A16		I1.5	-X8	16:2		=81.P11+L1/1
		BNRD		+S1-X68	B01	B01		I0.1	-X8	17:2		=81.P11+L1/1
		WHRD		+S1-X68	B02	B02			-X8	18:2		=81.P11+L1/1
		YEPK		+S1-X68	B03	B03		Q2.1	-X8	19:2		=81.P11+L1/1
		WHBK		+S1-X68	B04	B04		I0.2	-X8	20:2		=81.P11+L1/1
		GNBU		+S1-X68	B05	B05		Q2.5	-X8	21:2		=81.P11+L1/1
		BNBK		+S1-X68	B06	B06		I0.3	-X8	22:2		=81.P11+L1/1
		YEBU		+S1-X68	B07	B07		Q2.4	-X8	23:2		=81.P11+L1/1
		GYGN		+S1-X68	B08	B08		I0.4	-X8	24:2		=81.P11+L1/1
		GNRD		+S1-X68	B09	B09		Q2.3	-X8	25:2		=81.P11+L1/1
		YEGY		+S1-X68	B10	B10		I0.5	-X8	26:2		=81.P11+L1/1
		YERD		+S1-X68	B11	B11		Q2.2	-X8	27:2		=81.P11+L1/1
		PKGN		+S1-X68	B12	B12		I0.6	-X8	28:2		=81.P11+L1/1
		GNBK		+S1-X68	B13	B13			-X8	29:2		=81.P11+L1/1
		GN		+S1-X68	B14	B14		I8.1	-X8	30:2		=81.P11+L1/1
		YE		+S1-X68	B15	B15			-X8	31:2		=81.P11+L1/1
		GY		+S1-X68	B16	B16			-X8	32:2		=81.P11+L1/1
		PK		+S1-X68	C01	C01			-X8	33:2		=81.P11+L1/1
		BN		+S1-X68	C02	C02			-X8	34:2		=81.P11+L1/1
		WH		+S1-X68	C03	C03			-X8	35:2		=81.P11+L1/1

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connector diagram

function text							=81.P11+W1-W1E1	cable name	terminal connection diagram +E13-X68 handwheel plug-in station grinding support							cable name									page/ path
								cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type									
							YEBK		+S1-X68	C04	C04			-X8	36:2										=81.P11+L1/1
											C05														
											C06														
											C07														
											C08														
											C09														
											C10														
											C11														
											C12														
											C13														
											C14														
											C15														
											C16														
											D01														
											D02														
											D03														
											D04														
											D05														
											D06														
											D07														
											D08														
											D09														
											D10														
											D11														
											D12														
											D13														
											D14														
											D15														
									+S1-X68	D16	D16			-X8	37:2										=81.P11+L1/1
							SH		+S1-X68	PE1	PE1														=01.A1+E11/31
											PE2														

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +E13-X68	6	= XS1 + E13	function page 15/130
			design.	PED						
			check.				09 21 064 3001	98290	2953	page
change	date	name	norm		originally.	created for.	created by.	Han-D64F-C	WS450 KL x 5500 CNC Monolith	304

connector diagram

=81.P11+W1-W1E2 — cable name

terminal connection diagram
+E13-X68.1
handwheel plug-in station main control panel

function text	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	page/ path
	BU	+S1-X68.1	A01	A01			-X8	1:3		=01.A3+E11/1
	VT	+S1-X68.1	A02	A02			-X8	2:3		=01.A3+E11/1
	RD	+S1-X68.1	A03	A03			-X8	3:3		=01.A3+E11/1
	BK	+S1-X68.1	A04	A04			-X8	4:3		=01.A3+E11/1
	RDBU	+S1-X68.1	A05	A05			-X8	5:3		=81.P11+L1/1
	WHYE	+S1-X68.1	A06	A06			-X8	6:3		=81.P11+L1/1
	WHGN	+S1-X68.1	A07	A07			-X8	7:3		=81.P11+L1/1
	BNGN	+S1-X68.1	A08	A08			-X8	8:3		=81.P11+L1/1
	YEBN	+S1-X68.1	A09	A09		I0.7	-X8	9:3		=81.P11+L1/1
	WHGY	+S1-X68.1	A10	A10		I1.0	-X8	10:3		=81.P11+L1/1
	GYBN	+S1-X68.1	A11	A11		I1.1	-X8	11:3		=81.P11+L1/1
	WHPK	+S1-X68.1	A12	A12		I1.2	-X8	12:3		=81.P11+L1/1
	GYPK	+S1-X68.1	A13	A13			-X8	13:3		=81.P11+L1/1
	PKBN	+S1-X68.1	A14	A14		I1.3	-X8	14:3		=81.P11+L1/1
	WHBU	+S1-X68.1	A15	A15		I1.4	-X8	15:3		=81.P11+L1/1
	BNBU	+S1-X68.1	A16	A16		I1.5	-X8	16:3		=81.P11+L1/1
	BNRD	+S1-X68.1	B01	B01		I0.1	-X8	17:3		=81.P11+L1/1
	WHRD	+S1-X68.1	B02	B02			-X8	18:3		=81.P11+L1/1
	YEPK	+S1-X68.1	B03	B03		Q2.1	-X8	19:3		=81.P11+L1/1
	WHBK	+S1-X68.1	B04	B04		I0.2	-X8	20:3		=81.P11+L1/1
	GNBU	+S1-X68.1	B05	B05		Q2.5	-X8	21:3		=81.P11+L1/1
	BNBK	+S1-X68.1	B06	B06		I0.3	-X8	22:3		=81.P11+L1/1
	YEBU	+S1-X68.1	B07	B07		Q2.4	-X8	23:3		=81.P11+L1/1
	GYGN	+S1-X68.1	B08	B08		I0.4	-X8	24:3		=81.P11+L1/1
	GNRD	+S1-X68.1	B09	B09		Q2.3	-X8	25:3		=81.P11+L1/1
	YEGY	+S1-X68.1	B10	B10		I0.5	-X8	26:3		=81.P11+L1/1
	YERD	+S1-X68.1	B11	B11		Q2.2	-X8	27:3		=81.P11+L1/1
	PKGN	+S1-X68.1	B12	B12		I0.6	-X8	28:3		=81.P11+L1/1
	GNBK	+S1-X68.1	B13	B13			-X8	29:3		=81.P11+L1/1
	GN	+S1-X68.1	B14	B14		I8.1	-X8	30:3		=81.P11+L1/1
	YE	+S1-X68.1	B15	B15			-X8	31:3		=81.P11+L1/1
	GY	+S1-X68.1	B16	B16			-X8	32:3		=81.P11+L1/1
	PK	+S1-X68.1	C01	C01			-X8	33:3		=81.P11+L1/1
	BN	+S1-X68.1	C02	C02			-X8	34:3		=81.P11+L1/1
	WH	+S1-X68.1	C03	C03			-X8	35:3		=81.P11+L1/1

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connector diagram

function text							=81.P11+W1-W1E2	cable name	terminal connection diagram +E13-X68.1 handwheel plug-in station main control panel							cable name									page/ path
								cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type									
							YEBK		+S1-X68.1	C04	C04			-X8	36:3										=81.P11+L1/1
											C05														
											C06														
											C07														
											C08														
											C09														
											C10														
											C11														
											C12														
											C13														
											C14														
											C15														
											C16														
											D01														
											D02														
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											D11														
											D12														
											D13														
											D14														
											D15														
									+S1-X68.1	D16	D16			-X8	37:3										=81.P11+L1/1
							SH		+S1-X68.1	PE1	PE1														=01.A1+E11/31
											PE2														
											PE1														

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +E13-X68.1	8	= XS1 + E13	function page 17/130
			design.	PED				09 21 064 3001	98290 WS450 KL x 5500 CNC Monolith	2953	page 306
			check.					Han-D64F-C			
change	date	name	norm		originally.	created for.	created by.				

connector diagram

function text							=01.A1+W1-W31L	cable name	terminal connection diagram +E13-X81 energy headstock							cable name									page/ path
							JZ-HF 50x1	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type									
							1		+S1-X81	A01	A01			-X5.1	C3L+1:b										=01.A2+E11/3
							2		+S1-X81	A02	A02			-X5.1	C3ML1:b										=01.A2+E11/3
							3		+S1-X81	A03	A03			-X5.1	C3L+1:c										=01.A2+E11/3
							4		+S1-X81	A04	A04			-X5.1	C3ML1:c										=01.A2+E11/3
							5		+S1-X81	A05	A05			-X5.1	C5L+1:c										=01.A2+E11/5
							6		+S1-X81	A06	A06			-X5.1	C5ML1:b										=01.A2+E11/5
							7		+S1-X81	A07	A07			-X5.1	C5L+2:a										=01.A2+E11/5
							8		+S1-X81	A08	A08			-X5.1	C5ML1:c										=01.A2+E11/5
							9		+S1-X81	A09	A09			-X5.1	C6L+1:c										=01.A2+E11/6
							10		+S1-X81	A10	A10			-X5.1	C6ML1:b										=01.A2+E11/6
							11		+S1-X81	A11	A11			-X5.1	C6L+2:a										=01.A2+E11/6
							12		+S1-X81	A12	A12			-X5.1	C6ML1:c										=01.A2+E11/6
							13		+S1-X81	A13	A13			-X5.1	C8L+1:b										=01.A2+E11/8
							14		+S1-X81	A14	A14			-X5.1	C8ML1:b										=01.A2+E11/8
							15		+S1-X81	A15	A15			-X5.1	C8L+1:c										=01.A2+E11/8
							16		+S1-X81	A16	A16			-X5.1	C8ML1:c										=01.A2+E11/8
							17		+S1-X81	B01	B01			-X45	B12										=01.A3+E11/1
							18		+S1-X81	B02	B02			-X86	17										=01.A3+E11/1
							19		+S1-X81	B03	B03			-X45	B14										=01.A3+E11/1
							20		+S1-X81	B04	B04			-X86	19										=01.A3+E11/1
							21		+S1-X81	B05	B05			-X5.1	C4L+3:b										=01.A3+E11/12
							22		+S1-X81	B06	B06			=01.A3-K6B-XA1	3										=01.A3+E11/12
							23		+S1-X81	B07	B07			=01.A3-K6B-XA1	4										=01.A3+E11/12
							24		+S1-X81	B08	B08			=01.A3-K5B-X1	14										=01.A3+E11/12
							25		+S1-X81	B09	B09			-X5.1	C4ML2:a										=01.A3+E11/12
							26		+S1-X81	B10	B10			=01.A3-K2B-X1	27										=01.A3+E11/14
							27		+S1-X81	B11	B11			=01.A3-K2B	43										=01.A3+E11/14
							28		+S1-X81	B12	B12			=01.A3-K2B	44										=01.A3+E11/14
							29		+S1-X81	B13	B13			=01.A3-K2B-X1	28										=01.A3+E11/14
							30		+S1-X81	B14	B14			=01.A3-K2B	45										=01.A3+E11/14
							31		+S1-X81	B15	B15			=01.A3-K2B	46										=01.A3+E11/14
							32		+S1-X81	B16	B16			+N1-X2	C4ML:a										=01.A3+E11/15
							33		+S1-X81	C01	C01														=01.A3+E11/15
							34		+S1-X81	C02	C02														=01.A3+E11/15
							35		+S1-X81	C03	C03														=01.A3+E11/16

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +E13-X81	9	= XS1	function page
			design.	PED					+ E13	18/130
			check.				09 21 064 3001	98290	2953	page
change	date	name	norm		originally.	created for.	created by.	Han-D64F-C	WS450 KL x 5500 CNC Monolith	307

connector diagram

function text							=01.A1+W1-W31L	cable name	terminal connection diagram +E13-X81 energy headstock							cable name									page/ path
							JZ-HF 50x1	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type									
							36		+S1-X81	C04	C04														=01.A3+E11/16
											C05														
											C06														
											C07														
											C08														
											C09														
											C10														
											C11														
											C12														
											C13														
											C14														
											C15														
											C16														
											D01														
											D02														
											D03														
											D04														
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											D11														
											D12														
											D13														
											D14														
											D15														
											D16														
							GNYE		+S1-X81	PE1	PE1														=01.A1+E11/31
											PE2														

Created with a trial version of Syncfusion PDF library.

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +E13-X81	10	= XS1	function page
			design.	PED					+ E13	19/130
			check.				09 21 064 3001	98290	2953	page
change	date	name	norm		originally.	created for.	created by.	Han-D64F-C	WS450 KL x 5500 CNC Monolith	308

connector diagram

function text							=01.A1+W1-W31R	cable name	terminal connection diagram +E13-X86 control tailstock							cable name									page/ path
							JZ-HF 34x1	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type									
							1		+S1-X86	1	1			-X5.1	C3L+2:c										=01.A2+E11/3
							2		+S1-X86	2	2			-X5.1	C3ML2:c										=01.A2+E11/3
							3		+S1-X86	3	3			-X5.1	C3L+3:a										=01.A2+E11/3
							4		+S1-X86	4	4			-X5.1	C3ML3:a										=01.A2+E11/3
							5		+S1-X86	5	5			-X5.1	C5L+3:a										=01.A2+E11/5
							6		+S1-X86	6	6			-X5.1	C5ML2:c										=01.A2+E11/5
							7		+S1-X86	7	7			-X5.1	C5L+3:b										=01.A2+E11/5
							8		+S1-X86	8	8			-X5.1	C5ML3:a										=01.A2+E11/5
							9		+S1-X86	9	9			-X5.1	C6L+3:a										=01.A2+E11/6
							10		+S1-X86	10	10			-X5.1	C6ML2:c										=01.A2+E11/6
							11		+S1-X86	11	11			-X5.1	C6L+3:b										=01.A2+E11/6
							12		+S1-X86	12	12			-X5.1	C6ML3:a										=01.A2+E11/6
							13		+S1-X86	13	13			-X5.1	C8L+2:c										=01.A2+E11/8
							14		+S1-X86	14	14			-X5.1	C8ML2:c										=01.A2+E11/8
							15		+S1-X86	15	15			-X5.1	C8L+3:a										=01.A2+E11/8
							16		+S1-X86	16	16			-X5.1	C8ML3:a										=01.A2+E11/8
							17		+S1-X86	17	17			-X81	B02										=01.A3+E11/1
							18		+S1-X86	18	18			-X8	4:1										=01.A3+E11/1
							19		+S1-X86	19	19			-X81	B04										=01.A3+E11/1
							20		+S1-X86	20	20			-X8	2:1										=01.A3+E11/1
							21		+S1-X86	21	21			-X45	B16										=01.A3+E11/10
							22		+S1-X86	22	22			-X2.1	1:a										=01.A3+E11/10
											23														
											24														
											25														
											26														
											27														
											28														
											29														
											30														
											31														
											32														
							GNYE		+S1-X86	PE1	PE1														=01.A1+E11/31
											PE2														

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +E13-X86	11	= XS1	function page
			design.	PED						+ E13	20/130
			check.					09320323101	98290	2953	page
change	date	name	norm		originally.	created for.	created by.	09320323001	WS450 KL x 5500 CNC Monolith		309

connector diagram

function text							=01.A1+W1-W32W	cable name	terminal connection diagram +E13-X91 control water supply							cable name									page/ path
							JZ-HF 25x1	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type									
DisplayPort / DVI, 40 cm							1		+X1-X91	1	1			-X5.1	H4L+7:c										=61.L1+E11/3
=							2		+X1-X91	2	2			-X5.1	H4ML6										=61.L1+E11/3
=							3		+X1-X91	3	3			=71.M1+E11-X50.275	6										=61.L1+E11/3
=							4		+X1-X91	4	4			=71.M1+E11-X50.275	8										=61.L1+E11/3
=							5		+X1-X91	5	5			=71.M1+E11-X50.277	1										=61.L1+E11/3
=							6		+X1-X91	6	6			=71.M1+E11-X50.277	5										=61.L1+E11/3
=							7		+X1-X91	7	7			=71.M1+E11-X50.277	4										=61.L1+E11/10
=							8		+X1-X91	8	8			=71.M1+E11-X50.277	6										=61.L1+E11/10
=							9		+X1-X91	9	9			=71.M1+E11-X50.277	8										=61.L1+E11/10
=							10		+X1-X91	10	10			=71.M1+E11-X50.277	7										=61.L1+E11/10
=							11		+X1-X91	11	11			=71.M1+E11-X50.278	1										=61.L1+E11/10
=											12														=91.S5+E13/6
=											13														=91.S5+E13/6
=											14														=91.S5+E13/6
=											15														=91.S5+E13/6
=											16														=91.S5+E13/6
=											17														=91.S5+E13/6
=											18														=91.S5+E13/6
=											19														=91.S5+E13/6
=											20														=91.S5+E13/6
=											21														=91.S5+E13/6
=											22														=91.S5+E13/6
=											23														=91.S5+E13/6
=											24														=91.S5+E13/6
							GNYE		+X1-X91	PE1	PE1			=01.A1+E11-PE											=01.A1+E11/31
											PE2														

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +E13-X91	12	= XS1	function page
			design.	PED						+ E13	21/130
			check.					09 33 024 2648	98290	2953	page
change	date	name	norm		originally.	created for.	created by.	09 33 024 2748	WS450 KL x 5500 CNC Monolith		310

connector diagram

function text							=01.A1+W1-W32F	cable name	terminal connection diagram +E13-X97 control water USONIC							cable name									page/ path
							JZ-HF 18x1,5	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type									
							1		+X12-X97	1	1			=91.S3+E11-Q5W	2/T1										=91.S3+E13/5
							2		+X12-X97	2	2			=91.S3+E11-Q5W	4/T2										=91.S3+E13/5
							3		+X12-X97	3	3			=91.S3+E11-Q5W	6/T3										=91.S3+E13/5
							4		+X12-X97	4	4			=71.M1+E11-X50.280	5										=91.S3+E13/5
							5		+X12-X97	5	5			=91.S3+E12-Q5D	13										=91.S3+E13/5
							6		+X12-X97	6	6			=71.M1+E11-X50.280	4										=91.S3+E13/5
							7		+X12-X97	7	7			=71.M1+E11-X50.280	8										=91.S3+E13/5
							8		+X12-X97	8	8			=71.M1+E11-X50.280	6										=91.S3+E13/5
							9		+X12-X97	9	9			=71.M1+E11-X50.877	1										=91.S3+E11/30
							10		+X12-X97	10	10			=71.M1+E11-X50.877	3										=91.S3+E11/30
							11		+X12-X97	11	11			=71.M1+E11-X50.877	5										=91.S3+E11/30
							12		+X12-X97	12	12			=71.M1+E11-X50.877	7										=91.S3+E11/30
											13														
											14														
											15														
											16														
							GNYE		+X12-X97	PE1	PE1														=01.A1+E11/31
											PE2														

Created with a trial version of Syncfusion PDF Library.

21 23

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +E13-X97	13	= XS1	function page
			design.	PED						+ E13	22/130
			check.					09 33 016 2648	98290	2953	page
change	date	name	norm		originally.	created for.	created by.	09330162748	WS450 KL x 5500 CNC Monolith		311

connector diagram

terminal connection diagram

+P11-X68

handwheel

function text	cable name	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	cable name	=81.P11-W1B	page/ path
					1			=81.P11-A1B-S1	1.1			BU	=01.A3+E11/1
					2			=81.P11-A1B-S1	2.1			VT	=01.A3+E11/1
					3			=81.P11-A1B-S1	1.2			RD	=01.A3+E11/1
					4			=81.P11-A1B-S1	2.2			BK	=01.A3+E11/1
					5			=81.P11-A1B-S2	3.1			RDBU	=81.P11+L1/1
					6			=81.P11-A1B-S2	4.1			WHYE	=81.P11+L1/1
					7			=81.P11-A1B-S2	3.2			WHGN	=81.P11+L1/1
					8			=81.P11-A1B-S2	4.2			BNGN	=81.P11+L1/1
					9			=81.P11-A1B-S3	A			YEBN	=81.P11+L1/1
					10			=81.P11-A1B-S3	B			WHGY	=81.P11+L1/1
					11			=81.P11-A1B-S3	C			GYBN	=81.P11+L1/1
					12			=81.P11-A1B-S3	D			WHPK	=81.P11+L1/1
					13			=81.P11-A1B-S3	Z			GYPK	=81.P11+L1/1
					14			=81.P11-A1B-S4	A			PKBN	=81.P11+L1/1
					15			=81.P11-A1B-S4	B			WHBU	=81.P11+L1/1
					16			=81.P11-A1B-S4	C			BNBU	=81.P11+L1/1
					17			=81.P11-A1B-S5	3			BNRD	=81.P11+L1/1
					18			=81.P11-A1B-S5	X1			WHRD	=81.P11+L1/1
					19			=81.P11-A1B-S5	X2			YEPK	=81.P11+L1/1
					20			=81.P11-A1B-S6	3			WHBK	=81.P11+L1/1
					21			=81.P11-A1B-S6	X2			GNBU	=81.P11+L1/1
					22			=81.P11-A1B-S7	3			BNBK	=81.P11+L1/1
					23			=81.P11-A1B-S7	X2			YEBU	=81.P11+L1/1
					24			=81.P11-A1B-S8	3			GYGN	=81.P11+L1/1
					25			=81.P11-A1B-S8	X2			GNRD	=81.P11+L1/1
					26			=81.P11-A1B-S9	3			YEGY	=81.P11+L1/1
					27			=81.P11-A1B-S9	X2			YERD	=81.P11+L1/1
					28			=81.P11-A1B-S10	3			PKGN	=81.P11+L1/1
					29			=81.P11-A1B-S10	X2			GNBK	=81.P11+L1/1
					30			=81.P11-A1B-X1	1			GN	=81.P11+L1/1
					31			=81.P11-A1B-X1	2			YE	=81.P11+L1/1
					32			=81.P11-A1B-X1	3			GY	=81.P11+L1/1
					33			=81.P11-A1B-X1	4			PK	=81.P11+L1/1
					34			=81.P11-A1B-X1	5			BN	=81.P11+L1/1
					35			=81.P11-A1B-X1	6			WH	=81.P11+L1/1

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +P11-X68	1	= XS1 + P11	function page 23/130
			design.	PED						
			check.				09672375604	98290	2953	page 312
change	date	name	norm		originally.	created for.	created by.	Han 16A-gs-M20	WS450 KL x 5500 CNC Monolith	

connector diagram

terminal connection diagram

+P11-X68

handwheel

function text	cable name	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	cable name	page/ path
					36			-X68	13			=81.P11+L1/1
					37				SH			=81.P11+L1/1
					Geh							

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +P11-X68	2	= XS1 + P11	function page 24/130
			design.	PED							
			check.					09672375604	98290	2953	page
change	date	name	norm		originally.	created for.	created by.	Han 16A-gs-M20	WS450 KL x 5500 CNC Monolith		313

connector diagram

function text							=21.Z1.1-W2D	cable name	terminal connection diagram +L1-X9 motor z-axis headstockside							cable name	=21.Z1.1+S1-W2D								page/ path
							TOPSERV® 109x1,5	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	TOPSERV® 109x1,5								
							1		+U1-X9	1	1			+S1-X9	1		1								=21.Z1.1+E11/2
							2		+U1-X9	3	3			+S1-X9	3		2								=21.Z1.1+E11/2
							3		+U1-X9	4	4			+S1-X9	4		3								=21.Z1.1+E11/2
											A														
											B														
											C														
											D														
							GNYE		+U1-X9	PE	PE			+S1-X9	PE		GNYE								=21.Z1.1+E11/2
										SH	GEH			+U1-X9	GEH		SH								=21.Z1.1+E11/2

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +L1-X9	1	= XS1	function page 25/130
			design.	PED						+ L1	
			check.					BSTA078FR05580235400	98290	2953	page 314
change	date	name	norm		originally.	created for.	created by.	BKUA199MR24580200400	WS450 KL x 5500 CNC Monolith		

connector diagram

function text							=21.Z1.1-W3D	cable name	terminal connection diagram +L1-X10 motor z-axis tailstockside							cable name	=21.Z1.1+S1-W3D								page/ path
							TOPSERV® 109x1,5	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	TOPSERV® 109x1,5								
							1		+U1-X10	1	1			+S1-X10	1		1								=21.Z1.1+E11/3
							2		+U1-X10	3	3			+S1-X10	3		2								=21.Z1.1+E11/3
							3		+U1-X10	4	4			+S1-X10	4		3								=21.Z1.1+E11/3
											A														
											B														
											C														
											D														
							GNYE		+U1-X10	PE	PE			+S1-X10	PE		GNYE								=21.Z1.1+E11/3
							SH		+U1-X10	GEH	GEH														=21.Z1.1+E11/3

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +L1-X10	2	= XS1	function page 26/130
			design.	PED						+ L1	
			check.					BSTA078FR05580235400	98290	2953	page 315
change	date	name	norm		originally.	created for.	created by.	BKUA199MR24580200400	WS450 KL x 5500 CNC Monolith		

connector diagram

function text							=21.X1.1-W2C	cable name	terminal connection diagram +L1-X11 motor X-axis							cable name	=21.X1.1+S1-W2C								page/ path
							TOPSERV® 109x1,5	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	TOPSERV® 109x1,5								
							1		+U1-X11	1	1			+S1-X11	1		1								=21.X1.1+E11/2
							2		+U1-X11	3	3			+S1-X11	3		2								=21.X1.1+E11/2
							3		+U1-X11	4	4			+S1-X11	4		3								=21.X1.1+E11/2
											A														
											B														
											C														
											D														
							GNYE		+U1-X11	PE	PE			+S1-X11	PE		GNYE								=21.X1.1+E11/2
									=21.X1.1-WC2	SH	GEH			+S1-X11	GEH		SH								=21.X1.1+E11/2

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +L1-X11	3	= XS1	function page 27/130
			design.	PED						+ L1	
			check.					BSTA078FR05580235400	98290	2953	page 316
change	date	name	norm		originally.	created for.	created by.	BKUA199MR24580200400	WS450 KL x 5500 CNC Monolith		

connector diagram

function text							=21.C1.1-W2D	cable name	terminal connection diagram +L1-X12 plug connection power plug size 1 c-axis							cable name									page/ path
							TOPSERV® 109x1,5	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type									
							1		+U2-X12	1	1			+S1-X12	1										=21.C1.1+E11/2
							2		+U2-X12	3	3			+S1-X12	3										=21.C1.1+E11/2
							3		+U2-X12	4	4			+S1-X12	4										=21.C1.1+E11/2
											A														
											B														
											C														
											D														
							GNYE		+U2-X12	PE	PE			+S1-X12	PE										=21.C1.1+E11/2
							SH		+U2-X12	GEH	GEH			+S1-X12	GEH										=21.C1.1+E11/2

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +L1-X12	4	= XS1	function page 28/130
			design.	PED						+ L1	
			check.					BSTA078FR05580235400	98290	2953	page 317
change	date	name	norm		originally.	created for.	created by.	BKUA199MR24580200400	WS450 KL x 5500 CNC Monolith		

connector diagram

function text							=21.C1.2-WB2	cable name	terminal connection diagram +L1-X20 motor grinding wheel							cable name	=21.C1.2+S1-WB2								page/ path
							TOPSERV 109 4x2.5	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	TOPSERV 109 4x2.5								
							U		=21.C1.2+U2-M2D	U	U			+S1-X20	U		U								=21.C1.2+E11/2
							V		=21.C1.2+U2-M2D	V	V			+S1-X20	V		V								=21.C1.2+E11/2
							W		=21.C1.2+U2-M2D	W	W			+S1-X20	W		W								=21.C1.2+E11/2
											+														
											-														
							GNYE		=21.C1.2+U2-M2D	PE	PE			+S1-X20	PE		GNYE								=21.C1.2+E11/2
							SH		+S1-X20	GEH	GEH														=21.C1.2+E11/2

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +L1-X20	5	= XS1 + L1	function page 29/130
			design.	PED				DSTA001FR03740001400	98290	2953	page
			check.					DKUA002MR03740001400	WS450 KL x 5500 CNC Monolith		318
change	date	name	norm		originally.	created for.	created by.				

connector diagram

function text							=21.C1.2-WE2	cable name	terminal connection diagram +L1-X21 motor grinding wheel							cable name	=21.C1.2+S1-WE2								page/ path
							TOPSERV 109 4x25	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	TOPSERV 109 4x25								
							U		=21.C1.2+U2-M2D	U	U			+S1-X21	U		U								=21.C1.2+E11/2
							V		=21.C1.2+U2-M2D	V	V			+S1-X21	V		V								=21.C1.2+E11/2
							W		=21.C1.2+U2-M2D	W	W			+S1-X21	W		W								=21.C1.2+E11/2
											+														
											-														
							GNYE		=21.C1.2+U2-M2D	PE	PE			+S1-X21	PE		GNYE								=21.C1.2+E11/2
							SH		=21.C1.2+E11-Geh	Geh	GEH														=21.C1.2+E11/2

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +L1-X21	6	= XS1 + L1	function page 30/130
			design.	PED				DSTA001FR03740001400	98290	2953	page
			check.					DKUA002MR03740001400	WS450 KL x 5500 CNC Monolith		319
change	date	name	norm		originally.	created for.	created by.				

connector diagram

function text							=21.C1.2-WL2	cable name	terminal connection diagram +L1-X22 encoder grinding wheel							cable name	=21.C1.2+S1-WL2								page/ path
							TOPGEBER 5109x	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	TOPGEBER 5109x								
							BK		+U2-X22	1	1			+S1-X22	1		BK								=21.C1.2+E11/2
							OG		+U2-X22	2	2			+S1-X22	2		OG								=21.C1.2+E11/2
							GNBK		+U2-X22	3	3			+S1-X22	3		GNBK								=21.C1.2+E11/2
											4														
							GN		+U2-X22	5	5			+S1-X22	5		GN								=21.C1.2+E11/2
							YE		+U2-X22	6	6			+S1-X22	6		YE								=21.C1.2+E11/2
							RD		+U2-X22	7	7			+S1-X22	7		RD								=21.C1.2+E11/2
							BN		+U2-X22	8	8			+S1-X22	8		BN								=21.C1.2+E11/2
											9														=21.C1.2+E11/2
							BNBU		+U2-X22	10	10			+S1-X22	10		BNBU								=21.C1.2+E11/2
							GNRD		+U2-X22	11	11			+S1-X22	11		GNRD								=21.C1.2+E11/2
							BNRD		+U2-X22	12	12			+S1-X22	12		BNRD								=21.C1.2+E11/2
											GEH														=21.C1.2+E11/2

Created with a trial version of Syncfusion PDF library.

30 32

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +L1-X22	7	= XS1	function page
			design.	PED						+ L1	31/130
			check.					623 Stecker	98290	2953	page
change	date	name	norm		originally.	created for.	created by.	AKUB630MRXX620296400 SET	WS450 KL x 5500 CNC Monolith		320

connector diagram

function text					=01.A1+S1-W31B	=21.Z1.1+U1-W6D	=01.A1-W31B	cable name	terminal connection diagram +L1-X40 energy carriage							cable name	=01.A1+S1-W31B	=01.A1-W31B							page/ path
					JZ-HF 34x1,5	JZ-HF 4x1,5	JZ-HF 34x1,5	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	JZ-HF 34x1,5	JZ-HF 34x1,5							
							1		+U2-X40	1	1			+S1-X40	1		1								=01.A1+E11/7
							2		+U2-X40	2	2			+S1-X40	2		2								=01.A1+E11/7
									+Z2-X40	1	3			+S1-X40	3		3								=01.A1+E11/7
									+Z2-X40	2	4			+S1-X40	4		4								=01.A1+E11/7
							5		+U2-X40	3	5			+S1-X40	5		5								=21.C1.2+E11/7
							6		+U2-X40	4	6			+S1-X40	6		6								=21.C1.2+E11/7
							7		+U2-X40	5	7			+S1-X40	7		7								=21.C1.2+E11/7
							8		+U2-X40	6	8			+S1-X40	8		8								=21.C1.2+E11/8
							9		+U2-X40	7	9			+S1-X40	9		9								=21.C1.2+E11/8
							10		+U2-X40	8	10			+S1-X40	10		10								=21.C1.2+E11/8
							11		=21.X1.1+U1-M5E	U1	11			+S1-X40	11		11								=21.X1.1+E11/5
							12		=21.X1.1+U1-M5E	V1	12			+S1-X40	12		12								=21.X1.1+E11/5
							13		=21.X1.1+U1-M5E	W1	13			+S1-X40	13		13								=21.X1.1+E11/5
						1			=21.Z1.1+U1-M6D	U1	14			+S1-X40	14		14								=21.Z1.1+E11/6
						2			=21.Z1.1+U1-M6D	V1	15			+S1-X40	15		15								=21.Z1.1+E11/6
						3			=21.Z1.1+U1-M6D	W1	16			+S1-X40	16		16								=21.Z1.1+E11/6
							17		+U2-X40	17	17			+S1-X40	17		17								=61.L6+E11/1
					18				+S1-X40	18	18			+U2-X40	18			18							=61.L6+E11/1
					19				+S1-X40	19	19			-X1	24:b										=28.C8.1+Z1/1
					20				+S1-X40	20	20			-X1	25:b										=28.C8.1+Z1/1
					21				+S1-X40	21	21			-X1	26:b										=28.C8.1+Z1/1
					22				+S1-X40	22	22			-X1	27:a										=01.A1+E11/8
					23				+S1-X40	23	23			-X1	28:a										=01.A1+E11/8
					24				+S1-X40	24	24			-X1	29:a										=01.A1+E11/8
					25				+S1-X40	25	25			-X1	30:a										=01.A1+E11/8
											26														
											27														
											28														
											29														
											30														
											31														
											32														
									-XPE	PE4	PE1			+S1-X40	PE1		GNYE								=01.A1+E11/31
											PE2														

Created with a trial version of Syncfusion PDF library.

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +L1-X40	8	= XS1	function page	
			design.	PED					+ L1	32/130	
			check.				09320323101	98290	2953	page	
change	date	name	norm		originally.	created for.	created by.	09320323001	WS450 KL x 5500 CNC Monolith	321	

connector diagram

function text					=01.A1+S1-W31D	=01.A3-W12D	=01.A1-W31D	cable name	terminal connection diagram +L1-X45 control carriage							cable name	=01.A1+S1-W31D								page/ path
					JZ-HF 50x1	JZ-HF 10x0,5	JZ-HF / OZ-HF34x1	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	JZ-HF 50x1								
									-X1	C3L+1:a	A01			+S1-X45	A01		1								=01.A2+E11/3
									-X1	C3ML1:a	A02			+S1-X45	A02		2								=01.A2+E11/3
									-X1	C3L+1:b	A03			+S1-X45	A03		3								=01.A2+E11/3
									-X1	C3ML1:b	A04			+S1-X45	A04		4								=01.A2+E11/3
									-X1	C5L+1:a	A05			+S1-X45	A05		5								=01.A2+E11/5
									-X1	C5ML1:a	A06			+S1-X45	A06		6								=01.A2+E11/5
									-X1	C5L+1:b	A07			+S1-X45	A07		7								=01.A2+E11/5
									-X1	C5ML1:b	A08			+S1-X45	A08		8								=01.A2+E11/5
									-X1	C5L+1:d	A09			+S1-X45	A09		9								=01.A2+E11/5
									-X1	C5ML1:d	A10			+S1-X45	A10		10								=01.A2+E11/5
									-X1	C6L+1:a	A11			+S1-X45	A11		11								=01.A2+E11/6
									-X1	C6ML1:a	A12			+S1-X45	A12		12								=01.A2+E11/6
									-X1	C6L+1:b	A13			+S1-X45	A13		13								=01.A2+E11/6
									-X1	C6ML1:b	A14			+S1-X45	A14		14								=01.A2+E11/6
							9		+U2-X45	9	A15			+S1-X45	A15		15								=01.A2+E11/7
							10		+U2-X45	10	A16			+S1-X45	A16		16								=01.A2+E11/7
									-X1	C8L+1:a	B01			+S1-X45	B01		17								=01.A2+E11/8
									-X1	C8ML1:a	B02			+S1-X45	B02		18								=01.A2+E11/8
									-X1	C8L+1:b	B03			+S1-X45	B03		19								=01.A2+E11/8
									-X1	C8ML1:b	B04			+S1-X45	B04		20								=01.A2+E11/8
									-X1	U9L+:a	B05			+S1-X45	B05		21								=01.A2+E11/9
									-X1	U9ML:a	B06			+S1-X45	B06		22								=01.A2+E11/9
									-X1	C11L+1:a	B07			+S1-X45	B07		23								=01.A2+E13/11
									-X1	C11ML1:a	B08			+S1-X45	B08		24								=01.A2+E13/11
									-X1	C11L+2:a	B09			+S1-X45	B09		25								=01.A2+E13/11
									-X1	C11ML2:a	B10			+S1-X45	B10		26								=01.A2+E13/11
									-X1	1:a	B11			+S1-X45	B11		27								=01.A3+E11/1
							12		+U2-X45	12	B12			+S1-X45	B12		28								=01.A3+E11/1
									-X1	3:a	B13			+S1-X45	B13		29								=01.A3+E11/1
							14		+U2-X45	14	B14			+S1-X45	B14		30								=01.A3+E11/1
						1			=21.Z1.1+U1-A10B-B10E	21	B15			+S1-X45	B15		31								=01.A3+E11/10
									-X1	7:a	B16			+S1-X45	B16		32								=01.A3+E11/10
					33				+S1-X45	C01	C01			-X1	11:a										=01.A3+E11/10
									-X1	12:b	C02			+S1-X45	C02		34								=01.A3+E11/10
									-X1	C4L+1:a	C03			+S1-X45	C03		35								=01.A3+E11/11

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +L1-X45	9	= XS1	function page 33/130
			design.	PED						+ L1	
			check.					Z5.574.2453.0	98290	2953	page 322
change	date	name	norm		originally.	created for.	created by.	09 21 064 3001	WS450 KL x 5500 CNC Monolith		

connector diagram

terminal connection diagram

+L1-X45

control carriage

function text				=01.A1-W31F	=01.A3-W12.1D	=01.A1+S1-W31D	=01.A1-W31D	cable name	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable name	=01.A1+S1-W31D								page/ path
				JZ-HF 34x1,5	ÖZ-J 10x0,5mm²	JZ-HF 50x1	JZ-HF / OZ-HF34x1	cable type								cable type	JZ-HF 50x1								
							22		+U2-X45	22	C04			+S1-X45	C04		36								=01.A3+E11/11
							23		+U2-X45	23	C05			+S1-X45	C05		37								=01.A3+E11/11
							24		+U2-X45	24	C06			+S1-X45	C06		38								=01.A3+E11/11
									-X1	C4ML1:a	C07			+S1-X45	C07		39								=01.A3+E11/11
						40			+S1-X45	C08	C08			-X1	13:b										=01.A3+E11/11
						41			+S1-X45	C09	C09			-X1	14:b										=01.A3+E11/11
					3				=21.X1.1+U1-A10B-B10J	13	C10			+S1-X45	C10		42								=21.X1.1+E11/4
					4				=21.X1.1+U1-A10B-B10J	14	C11			+S1-X45	C11		43								=21.X1.1+E11/4
									-X1	20:b	C12			+S1-X45	C12		44								=01.A3+E11/11
									-X1	21:b	C13			+S1-X45	C13		45								=01.A3+E11/11
									-X1	17:a	C14			+S1-X45	C14		46								=01.A3+E11/11
				9					+Z1-X45	9	C15			+S1-X45	C15										=91.S1+Z1/1
				10					+Z1-X45	10	C16			+S1-X45	C16										=91.S1+Z1/1
											D01														
											D02														
											D03														
											D04														
											D05														
											D06														
											D07														
											D08														
											D09														
											D10														
											D11														
											D12														
											D13														
											D14														
											D15														
											D16														
									-XPE	PE5	PE1			+S1-X45	PE1		GNYE								=01.A1+E11/31
											PE2														

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +L1-X45	10	= XS1	function page
			design.	PED					+ L1	34/130
			check.				Z5.574.2453.0	98290	2953	page
change	date	name	norm		originally.	created for.	created by.	09 21 064 3001	WS450 KL x 5500 CNC Monolith	323

connector diagram

function text							=21.Z1.1-W2L	cable name	terminal connection diagram +L1-X55 Position encoder Z-axis headstock side							cable name	=21.Z1.1+S1-W2L								page/ path
							TOPGEBER 5129x	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	TOPGEBER 5129x								
							BK		+U1-X55	1	1			+S1-X55	1		BK								=21.Z1.1+E11/2
							OG		+U1-X55	2	2			+S1-X55	2		OG								=21.Z1.1+E11/2
							GNBK		+U1-X55	3	3			+S1-X55	3		GNBK								=21.Z1.1+E11/2
											4														
							GN		+U1-X55	5	5			+S1-X55	5		GN								=21.Z1.1+E11/2
							YE		+U1-X55	6	6			+S1-X55	6		YE								=21.Z1.1+E11/2
							RD		+U1-X55	7	7			+S1-X55	7		RD								=21.Z1.1+E11/2
							BN		+U1-X55	8	8			+S1-X55	8		BN								=21.Z1.1+E11/2
										SH3	9				SH3		SH3								=21.Z1.1+E11/2
							BNBU		+U1-X55	10	10			+S1-X55	10		BNBU								=21.Z1.1+E11/2
							GNRD		+U1-X55	11	11			+S1-X55	11		GNRD								=21.Z1.1+E11/2
							BNRD		+U1-X55	12	12			+S1-X55	12		BNRD								=21.Z1.1+E11/2
										SH	GEH			+U1-X55	GEH		SH								=21.Z1.1+E11/2

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +L1-X55	11	= XS1	function page 35/130
			design.	PED						+ L1	
			check.					623 Stecker	98290	2953	page 324
change	date	name	norm		originally.	created for.	created by.	AKUB630MRXX620296400 SET	WS450 KL x 5500 CNC Monolith		

connector diagram

function text							=21.Z1.1-W3L	cable name	terminal connection diagram +L1-X56 Position encoder Z-axis tailstock side							cable name	=21.Z1.1+S1-W3L								page/ path
							TOPGEBER 5129x	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	TOPGEBER 5129x								
							BK		+U1-X56	1	1			+S1-X56	1		BK								=21.Z1.1+E11/3
							OG		+U1-X56	2	2			+S1-X56	2		OG								=21.Z1.1+E11/3
							GNBK		+U1-X56	3	3			+S1-X56	3		GNBK								=21.Z1.1+E11/3
											4														
							GN		+U1-X56	5	5			+S1-X56	5		GN								=21.Z1.1+E11/3
							YE		+U1-X56	6	6			+S1-X56	6		YE								=21.Z1.1+E11/3
							RD		+U1-X56	7	7			+S1-X56	7		RD								=21.Z1.1+E11/3
							BN		+U1-X56	8	8			+S1-X56	8		BN								=21.Z1.1+E11/3
									+S1-X56	9	9			+U1-X56	9		SH3								=21.Z1.1+E11/3
							BNBU		+U1-X56	10	10			+S1-X56	10		BNBU								=21.Z1.1+E11/3
							GNRD		+U1-X56	11	11			+S1-X56	11		GNRD								=21.Z1.1+E11/3
							BNRD		+U1-X56	12	12			+S1-X56	12		BNRD								=21.Z1.1+E11/3
							SH		+U1-X56	GEH	GEH														=21.Z1.1+E11/3

Created with a trial version of Synchron PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +L1-X56	12	= XS1	function page
			design.	PED						+ L1	36/130
			check.					623 Stecker	98290	2953	page
change	date	name	norm		originally.	created for.	created by.	AKUB630MRXX620296400 SET	WS450 KL x 5500 CNC Monolith		325

connector diagram

function text							=21.X1.1-W2L	cable name	terminal connection diagram +L1-X57 position encoder X-axis							cable name	=21.X1.1+S1-W2L								page/ path
							TOPGEBER 5129x	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	TOPGEBER 5129x								
							BK		+U1-X57	1	1			+S1-X57	1		BK								=21.X1.1+E11/2
							OG		+U1-X57	2	2			+S1-X57	2		OG								=21.X1.1+E11/2
							GNBK		+U1-X57	3	3			+S1-X57	3		GNBK								=21.X1.1+E11/2
											4														
							GN		+U1-X57	5	5			+S1-X57	5		GN								=21.X1.1+E11/2
							YE		+U1-X57	6	6			+S1-X57	6		YE								=21.X1.1+E11/2
							RD		+U1-X57	7	7			+S1-X57	7		RD								=21.X1.1+E11/2
							BN		+U1-X57	8	8			+S1-X57	8		BN								=21.X1.1+E11/2
										SH3	9				SH3		SH3								=21.X1.1+E11/2
							BNBU		+U1-X57	10	10			+S1-X57	10		BNBU								=21.X1.1+E11/2
							GNRD		+U1-X57	11	11			+S1-X57	11		GNRD								=21.X1.1+E11/2
							BNRD		+U1-X57	12	12			+S1-X57	12		BNRD								=21.X1.1+E11/2
										SH	GEH														=21.X1.1+E11/2

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +L1-X57	13	= XS1	function page
			design.	PED						+ L1	37/130
			check.					623 Stecker	98290	2953	page
change	date	name	norm		originally.	created for.	created by.	AKUB630MRXX620296400 SET	WS450 KL x 5500 CNC Monolith		326

connector diagram

terminal connection diagram

+L1-X58

position encoder C-axis

function text	=21.C1.1+S1-W2M	=21.C1.1-W2M	cable name	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable name	=21.C1.1+S1-W2M	page/ path
	TOPGEBER 5109x	TOPGEBER 5129x	cable type								cable type	TOPGEBER 5109x	
		BK		+U2-X58	1	1			+S1-X58	1		BK	=21.C1.1+E11/2
		OG		+U2-X58	2	2			+S1-X58	2		OG	=21.C1.1+E11/2
		GNBK		+U2-X58	3	3			+S1-X58	3		GNBK	=21.C1.1+E11/2
						4							
		GN		+U2-X58	5	5			+S1-X58	5		GN	=21.C1.1+E11/2
		YE		+U2-X58	6	6			+S1-X58	6		YE	=21.C1.1+E11/2
		RD		+U2-X58	7	7			+S1-X58	7		RD	=21.C1.1+E11/2
		BN		+U2-X58	8	8			+S1-X58	8		BN	=21.C1.1+E11/2
	SH3			-X58	9	9			-X58	9		SH3	=21.C1.1+E11/2
		BNBU		+U2-X58	10	10			+S1-X58	10		BNBU	=21.C1.1+E11/2
		GNRD		+U2-X58	11	11			+S1-X58	11		GNRD	=21.C1.1+E11/2
		BNRD		+U2-X58	12	12			+S1-X58	12		BNRD	=21.C1.1+E11/2
		SH		+U2-X58	GEH	GEH							=21.C1.1+E11/2

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +L1-X58	14	= XS1 + L1	function page 38/130
			design.	PED							
			check.					623 Stecker	98290	2953	page
change	date	name	norm		originally.	created for.	created by.	AKUB630MRXX620296400 SET	WS450 KL x 5500 CNC Monolith		327

connector diagram

function text							=81.P11-W1E1	cable name	terminal connection diagram +L1-X68 handwheel							cable name	=81.P11+S1-W1E1	=81.P11+W1-W1E1							page/ path
								cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type									
handwheel terminal box carriage									+U2-X68	1	A01			+S1-X68	A01		BU								=01.A3+E11/1
=									+U2-X68	2	A02			+S1-X68	A02			VT							=01.A3+E11/1
=									+U2-X68	3	A03			+S1-X68	A03		RD								=01.A3+E11/1
=									+U2-X68	4	A04			+S1-X68	A04			BK							=01.A3+E11/1
=							RDBU		+U2-X68	5	A05			+S1-X68	A05		RDBU								=81.P11+L1/1
=							WHYE		+U2-X68	6	A06			+S1-X68	A06		WHYE								=81.P11+L1/1
=							WHGN		+U2-X68	7	A07			+S1-X68	A07		WHGN								=81.P11+L1/1
=							BNGN		+U2-X68	8	A08			+S1-X68	A08		BNGN								=81.P11+L1/1
=							YEBN		+U2-X68	9	A09		I0.7	+S1-X68	A09		YEBN								=81.P11+L1/1
=							WHGY		+U2-X68	10	A10		I1.0	+S1-X68	A10		WHGY								=81.P11+L1/1
=							GYBN		+U2-X68	11	A11		I1.1	+S1-X68	A11		GYBN								=81.P11+L1/1
=							WHPK		+U2-X68	12	A12		I1.2	+S1-X68	A12		WHPK								=81.P11+L1/1
=							GYPK		+U2-X68	13	A13			+S1-X68	A13		GYPK								=81.P11+L1/1
=							PKBN		+U2-X68	14	A14		I1.3	+S1-X68	A14		PKBN								=81.P11+L1/1
=							WHBU		+U2-X68	15	A15		I1.4	+S1-X68	A15		WHBU								=81.P11+L1/1
=							BNBU		+U2-X68	16	A16		I1.5	+S1-X68	A16		BNBU								=81.P11+L1/1
=							BNRD		+U2-X68	17	B01		I0.1	+S1-X68	B01		BNRD								=81.P11+L1/1
=							WHRD		+U2-X68	18	B02			+S1-X68	B02		WHRD								=81.P11+L1/1
=							YEPK		+U2-X68	19	B03		Q2.1	+S1-X68	B03		YEPK								=81.P11+L1/1
=							WHBK		+U2-X68	20	B04		I0.2	+S1-X68	B04		WHBK								=81.P11+L1/1
=							GNBU		+U2-X68	21	B05		Q2.5	+S1-X68	B05		GNBU								=81.P11+L1/1
=							BNBK		+U2-X68	22	B06		I0.3	+S1-X68	B06		BNBK								=81.P11+L1/1
=							YEBU		+U2-X68	23	B07		Q2.4	+S1-X68	B07		YEBU								=81.P11+L1/1
=							GYGN		+U2-X68	24	B08		I0.4	+S1-X68	B08		GYGN								=81.P11+L1/1
=							GNRD		+U2-X68	25	B09		Q2.3	+S1-X68	B09		GNRD								=81.P11+L1/1
=							YEGY		+U2-X68	26	B10		I0.5	+S1-X68	B10		YEGY								=81.P11+L1/1
=							YERD		+U2-X68	27	B11		Q2.2	+S1-X68	B11		YERD								=81.P11+L1/1
=							PKGN		+U2-X68	28	B12		I0.6	+S1-X68	B12		PKGN								=81.P11+L1/1
=							GNBK		+U2-X68	29	B13			+S1-X68	B13		GNBK								=81.P11+L1/1
=							GN		+U2-X68	30	B14		I8.1	+S1-X68	B14		GN								=81.P11+L1/1
=							YE		+U2-X68	31	B15			+S1-X68	B15		YE								=81.P11+L1/1
=							GY		+U2-X68	32	B16			+S1-X68	B16		GY								=81.P11+L1/1
=							PK		+U2-X68	33	C01			+S1-X68	C01		PK								=81.P11+L1/1
=							BN		+U2-X68	34	C02			+S1-X68	C02		BN								=81.P11+L1/1
=							WH		+U2-X68	35	C03			+S1-X68	C03		WH								=81.P11+L1/1

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +L1-X68	15	= XS1	function page
			design.	PED						+ L1	39/130
			check.					09 21 064 3001	98290	2953	page
change	date	name	norm		originally.	created for.	created by.	Han-D64F-C	WS450 KL x 5500 CNC Monolith		328

connector diagram

function text							=81.P11-W1E1	cable name	terminal connection diagram +L1-X68 handwheel							cable name	=81.P11+S1-W1E1								page/ path
								cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type									
handwheel terminal box carriage							YEBK		+U2-X68	36	C04			+S1-X68	C04		YEBK								=81.P11+L1/1
											C05														
											C06														
											C07														
											C08														
											C09														
											C10														
											C11														
											C12														
											C13														
											C14														
											C15														
											C16														
											D01														
											D02														
											D03														
											D04														
											D05														
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											D09														
											D10														
											D11														
											D12														
											D13														
											D14														
											D15														
handwheel terminal box carriage									+U2-X68	37	D16			+S1-X68	D16										=81.P11+L1/1
									-XPE	PE5	PE1			+S1-X68	PE1		SH								=01.A1+E11/31
											PE2														
											PE1														

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +L1-X68	16	= XS1	function page 40/130
			design.	PED						+ L1	
			check.					09 21 064 3001	98290	2953	page 329
change	date	name	norm		originally.	created for.	created by.	Han-D64F-C	WS450 KL x 5500 CNC Monolith		

connector diagram

function text						=01.A1+S1-W31J	=01.A1-W31J	cable name	terminal connection diagram +N1-X80 energy headstock							cable name	=01.A1+S1-W31J	=01.A1-W31J							page/ path
						JZ-HF 18x1,5	JZ-HF 18x1,5	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	JZ-HF 18x1,5	JZ-HF 18x1,5							
							1		+X3-X80	1	1			+S1-X80	1		1								=21.Z1.1+E11/5
							2		+X3-X80	2	2			+S1-X80	2		2								=21.Z1.1+E11/5
							3		+X3-X80	3	3			+S1-X80	3		3								=21.Z1.1+E11/5
									-X1	5:a	4			+S1-X80	4		4								=22.C2.1+E11/4
									-X1	7:a	5			+S1-X80	5		5								=22.C2.1+E11/4
									-X1	9:a	6			+S1-X80	6		6								=22.C2.1+E11/4
							4		+X3-X80	4	7			+S1-X80	7		7								=11.H11+E11/1
							5		+X3-X80	5	8			+S1-X80	8		8								=11.H11+E11/1
							6		+X3-X80	6	9			+S1-X80	9		9								=11.H11+E11/1
						10			+S1-X80	10	10			+X3-X80	7			7							=61.L3+E11/1
						11			+S1-X80	11	11			+X3-X80	8			8							=61.L3+E11/1
						12			+S1-X80	12	12			+X3-X80	9			9							=61.L3+E11/1
											13														
											14														
											15														
											16														
									-X1	PE1:a	PE1			+S1-X80	PE1		GNYE								=01.A1+E11/31
											PE2														

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +N1-X80	1	= XS1	function page 41/130
			design.	PED						+ N1	
			check.					09 33 016 2648	98290	2953	page 330
change	date	name	norm		originally.	created for.	created by.	09330162748	WS450 KL x 5500 CNC Monolith		

connector diagram

function text							=01.A1-W31N	cable name	terminal connection diagram +N1-X81 energy headstock							cable name	=01.A1+S1-W31L								page/ path
							JZ-HF 34x1	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	JZ-HF 50x1								
									-X1	C3L+1:a	A01			+S1-X81	A01		1								=01.A2+E11/3
									-X1	C3ML1:a	A02			+S1-X81	A02		2								=01.A2+E11/3
									-X1	C3L+1:b	A03			+S1-X81	A03		3								=01.A2+E11/3
									-X1	C3ML1:b	A04			+S1-X81	A04		4								=01.A2+E11/3
									-X1	C5L+1:a	A05			+S1-X81	A05		5								=01.A2+E11/5
									-X1	C5ML1:a	A06			+S1-X81	A06		6								=01.A2+E11/5
									-X1	C5L+1:b	A07			+S1-X81	A07		7								=01.A2+E11/5
									-X1	C5ML1:b	A08			+S1-X81	A08		8								=01.A2+E11/5
									-X1	C6L+1:a	A09			+S1-X81	A09		9								=01.A2+E11/6
									-X1	C6ML1:a	A10			+S1-X81	A10		10								=01.A2+E11/6
									-X1	C6L+1:b	A11			+S1-X81	A11		11								=01.A2+E11/6
									-X1	C6ML1:b	A12			+S1-X81	A12		12								=01.A2+E11/6
									-X1	C8L+1:a	A13			+S1-X81	A13		13								=01.A2+E11/8
									-X1	C8ML1:a	A14			+S1-X81	A14		14								=01.A2+E11/8
									-X1	C8L+1:b	A15			+S1-X81	A15		15								=01.A2+E11/8
									-X1	C8ML1:b	A16			+S1-X81	A16		16								=01.A2+E11/8
							1		+T1-X89	1	B01			+S1-X81	B01		17								=01.A3+E11/1
							2		+T1-X89	2	B02			+S1-X81	B02		18								=01.A3+E11/1
							3		+T1-X89	3	B03			+S1-X81	B03		19								=01.A3+E11/1
							4		+T1-X89	4	B04			+S1-X81	B04		20								=01.A3+E11/1
									-X2	C4L+:b	B05			+S1-X81	B05		21								=01.A3+E11/12
									-X2	1:b	B06			+S1-X81	B06		22								=01.A3+E11/12
									-X2	2:b	B07			+S1-X81	B07		23								=01.A3+E11/12
									-X2	3:b	B08			+S1-X81	B08		24								=01.A3+E11/12
									-X2	C4ML:b	B09			+S1-X81	B09		25								=01.A3+E11/12
									-X1	11:b	B10			+S1-X81	B10		26								=01.A3+E11/14
									-X1	1:b	B11			+S1-X81	B11		27								=01.A3+E11/14
									-X1	2:b	B12			+S1-X81	B12		28								=01.A3+E11/14
									-X1	12:b	B13			+S1-X81	B13		29								=01.A3+E11/14
									-X1	3:b	B14			+S1-X81	B14		30								=01.A3+E11/14
									-X1	4:b	B15			+S1-X81	B15		31								=01.A3+E11/14
									-X2	C4ML:a	B16			+S1-X81	B16		32								=01.A3+E11/15
									-X2	6:b	C01			+S1-X81	C01		33								=01.A3+E11/15
									-X2	7:b	C02			+S1-X81	C02		34								=01.A3+E11/15
									-X2	11:b	C03			+S1-X81	C03		35								=01.A3+E11/16

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +N1-X81	2	= XS1	function page 42/130
			design.	PED						+ N1	
			check.					09 21 064 3001	98290	2953	page 331
change	date	name	norm		originally.	created for.	created by.	Han-D64F-C	WS450 KL x 5500 CNC Monolith		

connector diagram

terminal connection diagram

+N1-X81

energy headstock

function text	cable name	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable name	=01.A1+S1-W31L	cable type	JZ-HF 50x1	page/ path
			-X2	12:b	C04			+S1-X81	C04		36			=01.A3+E11/16
					C05									
					C06									
					C07									
					C08									
					C09									
					C10									
					C11									
					C12									
					C13									
					C14									
					C15									
					C16									
					D01									
					D02									
					D03									
					D04									
					D05									
					D06									
					D07									
					D08									
					D09									
					D10									
					D11									
					D12									
					D13									
					D14									
					D15									
					D16									
			-X1	PE1:b	PE1			+S1-X81	PE1		GNYE			=01.A1+E11/31
					PE2									

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +N1-X81	3	= XS1 + N1	function page 43/130
			design.	PED						
			check.				09 21 064 3001	98290	2953	page 332
change	date	name	norm		originally.	created for.	created by.	Han-D64F-C	WS450 KL x 5500 CNC Monolith	

connector diagram

function text	cable name	cable type	terminal connection diagram +N1-X81.1 designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable name	=47.Y27.1-W10A	cable type	page/ path
											JZ-HF 18x0,5		
			=71.M1-X350.29	1	1			+T3-X81	1		1		=47.Y27.1+T3/10
			=71.M1-X350.29	3	3			+T3-X81	3		3		=47.Y27.1+T3/10
			=71.M1-X350.29	2	2			+T3-X81	2		2		=47.Y27.1+T3/10
			=71.M1-X350.29	5	4			+T3-X81	4		4		=47.Y27.1+T3/10
			=71.M1-X350.29	6	5			+T3-X81	5		5		=47.Y27.1+T3/10
			=71.M1-X350.29	7	6			+T3-X81	6		6		=47.Y27.1+T3/10
			=71.M1-X350.21	5	7			+T3-X81	7		7		=47.Y27.1+T3/10
			=71.M1-X350.21	6	8			+T3-X81	8		8		=47.Y27.1+T3/10

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +N1-X81.1	4	= XS1
			design.	PED					+ N1
			check.					98290 WS450 KL x 5500 CNC Monolith	2953
change	date	name	norm		originally.	created for.	created by.		

function page 44/130

page 333

connector diagram

terminal connection diagram

+N1-X81.2

softloader headstock-side down

function text	cable name	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable name	=47.Y28.1-W10A	cable type	12-HF 18x0,5	page/ path
			=71.M1-X350.27	2	2			+T4-X81	2		2			=47.Y28.1+T4/10
			=71.M1-X350.27	3	3			+T4-X81	3		3			=47.Y28.1+T4/10
			=71.M1-X350.27	1	1			+T4-X81	1		1			=47.Y28.1+T4/10
			=71.M1-X350.27	5	4			+T4-X81	4		4			=47.Y28.1+T4/10
			=71.M1-X350.27	6	5			+T4-X81	5		5			=47.Y28.1+T4/10
			=71.M1-X350.27	7	6			+T4-X81	6		6			=47.Y28.1+T4/10
			=71.M1-X350.21	1	7			+T4-X81	7					=47.Y28.1+T4/10
			=71.M1-X350.21	2	8			+T4-X81	8					=47.Y28.1+T4/10

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +N1-X81.2	5	= XS1 + N1	function page 45/130
			design.	PED				98290 WS450 KL x 5500 CNC Monolith	2953	page 334
			check.							
change	date	name	norm		originally.	created for.	created by.			

connector diagram

terminal connection diagram

+N1-X83

roll journal temperature + T3

function text	cable name	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	cable name	cable type	page/ path
											=47.Y27.1-W1K	TRONIC-CY (LiY-CY) 4x0,5	
			=71.M1-X350.410	5	1			+T3-X83	1		GN		=47.Y27.1+T3/10
			=71.M1-X350.410	6	2			+T3-X83	2		BN		=47.Y27.1+T3/10
			=71.M1-X350.410	7	3			+T3-X83	3		YE		=47.Y27.1+T3/10
			=47.Y27.1+S1-W370K		PE						SH		=47.Y27.1+T3/10

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +N1-X83	6	= XS1 + N1	function page 46/130
			design.	PED				Han 3A-gg-M20	98290	2953	page
			check.					09200032611	WS450 KL x 5500 CNC Monolith		335
change	date	name	norm		originally.	created for.	created by.				

connector diagram

terminal connection diagram

+N1-X84

roll journal temperature + T4

function text	cable name	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	cable name	=47.Y28.1-W1F	page/ path
												TRONIC-CY (LiY-CY) 4x0,5	
			=71.M1-X350.410	1	1			+T4-X84	1			GN	=47.Y28.1+T4/10
			=71.M1-X350.410	2	2			+T4-X84	2			BN	=47.Y28.1+T4/10
			=71.M1-X350.410	3	3			+T4-X84	3			YE	=47.Y28.1+T4/10
			=47.Y28.1+S1-W370F		PE							SH	=47.Y28.1+T4/10

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +N1-X84	7	= XS1
			design.	PED					+ N1
			check.				Han 3A-gg-M20	98290	2953
change	date	name	norm		originally. created for.	created by.	09200032611	WS450 KL x 5500 CNC Monolith	

function page 47/130

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connector diagram

function text	cable name	cable type	terminal connection diagram +N1-X85 designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	cable name	page/ path
			=71.M1-X350.1	6	1			=21.Z1.1+S1-B6R	1			=21.Z1.1+E11/6
			=71.M1-X350.1	5	2			=21.Z1.1+S1-B6R	2			=21.Z1.1+E11/6
			=71.M1-X350.1	7	3				4			=21.Z1.1+E11/6
					4							
			=71.M1-X350.1	8	PE			=21.Z1.1+S1-B6R	PE			=21.Z1.1+E11/6

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +N1-X85	8	= XS1 + N1	function page 48/130
			design.	PED						
			check.				Han 4A-STI-S Han 4A-BU-S	98290 WS450 KL x 5500 CNC Monolith	2953	page 337
change	date	name	norm		originally.	created for.	created by.			

connector diagram

function text						=01.A3-W1J1	=01.A2-W9F	cable name	terminal connection diagram +P1-X65 control main control desk							cable name	=01.A1+S1-W31T								page/ path
						PUR 8x0,34	JZ-HF 4x0,75	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	JZ-HF 18x1,5								
							1		-X101	1	A1			+S1-X65	1		1								=01.A2+E11/9
							2		-X101	2	A2			+S1-X65	2		2								=01.A2+E11/9
						GY			-X65.1	5	A3			+S1-X65	3		3								=01.A2+E11/9
						PK			-X65.1	6	A4			+S1-X65	4		4								=01.A2+E11/9
						WH			-X65.1	1	A5			+S1-X65	5		5								=01.A3+E11/1
						BN			-X65.1	2	A6			+S1-X65	6		6								=01.A3+E11/1
						GN			-X65.1	3	A7			+S1-X65	7		7								=01.A3+E11/1
						YE			-X65.1	4	A8			+S1-X65	8		8								=01.A3+E11/1
											A9														
											B2														
											B3														
											B4														
											B5														
											B6														
											B7														
											B8														
											C1														
											C2														
											C3														
											C4														
											C5														
											C6														
											C7														
											C8														
											C9														
											PE1			+S1-X65	PE1		GNYE								=01.A1+E11/31
											PE2														

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +P1-X65	1	= XS1 + P1	function page 49/130
			design.	PED							
			check.					Han 25D-STI-C 09 21 025 3101	98290 WS450 KL x 5500 CNC Monolith	2953	page 338
change	date	name	norm		originally.	created for.	created by.				

connector diagram

function text							=01.A3-W112	cable name	terminal connection diagram +P1-X65.1 emergency stop power supply main control panel +P1							cable name	=01.A3-W111								page/ path
							PUR 8x0,34mm²	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	PUR 8x0,34								
							WH		=71.M1-P2C	1	1			-X65	A5		WH								=01.A3+E11/1
							BN		=71.M1-P2C	2	2			-X65	A6		BN								=01.A3+E11/1
							GN		=71.M1-P2C	3	3			-X65	A7		GN								=01.A3+E11/1
							YE		=71.M1-P2C	4	4			-X65	A8		YE								=01.A3+E11/1
							GY		=71.M1-P2C-X1	1	5			-X65	A3		GY								=01.A2+E11/9
							PK		=71.M1-P2C-X1	2	6			-X65	A4		PK								=01.A2+E11/9

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +P1-X65.1	2	= XS1 + P1	function page 50/130
			design.	PED					98290 WS450 KL x 5500 CNC Monolith	2953	page 339
			check.								
change	date	name	norm		originally.	created for.	created by.				

connector diagram

terminal connection diagram

+P1-X68

handwheel

function text	cable name	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	cable name	=81.P11+S1-W1E2	page/ path
					1			+S1-X68.1	A01			BU	=01.A3+E11/1
					2			+S1-X68.1	A02			VT	=01.A3+E11/1
					3			+S1-X68.1	A03			RD	=01.A3+E11/1
					4			+S1-X68.1	A04			BK	=01.A3+E11/1
					5			+S1-X68.1	A05			RDBU	=81.P11+L1/1
					6			+S1-X68.1	A06			WHYE	=81.P11+L1/1
					7			+S1-X68.1	A07			WHGN	=81.P11+L1/1
					8			+S1-X68.1	A08			BNGN	=81.P11+L1/1
					9		I0.7	+S1-X68.1	A09			YEBN	=81.P11+L1/1
					10		I1.0	+S1-X68.1	A10			WHGY	=81.P11+L1/1
					11		I1.1	+S1-X68.1	A11			GYBN	=81.P11+L1/1
					12		I1.2	+S1-X68.1	A12			WHPK	=81.P11+L1/1
					13			+S1-X68.1	A13			GYPK	=81.P11+L1/1
					14		I1.3	+S1-X68.1	A14			PKBN	=81.P11+L1/1
					15		I1.4	+S1-X68.1	A15			WHBU	=81.P11+L1/1
					16		I1.5	+S1-X68.1	A16			BNBU	=81.P11+L1/1
					17		I0.1	+S1-X68.1	B01			BNRD	=81.P11+L1/1
					18			+S1-X68.1	B02			WHRD	=81.P11+L1/1
					19		Q2.1	+S1-X68.1	B03			YEPK	=81.P11+L1/1
					20		I0.2	+S1-X68.1	B04			WHBK	=81.P11+L1/1
					21		Q2.5	+S1-X68.1	B05			GNBU	=81.P11+L1/1
					22		I0.3	+S1-X68.1	B06			BNBK	=81.P11+L1/1
					23		Q2.4	+S1-X68.1	B07			YEBU	=81.P11+L1/1
					24		I0.4	+S1-X68.1	B08			GYGN	=81.P11+L1/1
					25		Q2.3	+S1-X68.1	B09			GNRD	=81.P11+L1/1
					26		I0.5	+S1-X68.1	B10			YEGY	=81.P11+L1/1
					27		Q2.2	+S1-X68.1	B11			YERD	=81.P11+L1/1
					28		I0.6	+S1-X68.1	B12			PKGN	=81.P11+L1/1
					29			+S1-X68.1	B13			GNBK	=81.P11+L1/1
					30		I8.1	+S1-X68.1	B14			GN	=81.P11+L1/1
					31			+S1-X68.1	B15			YE	=81.P11+L1/1
					32			+S1-X68.1	B16			GY	=81.P11+L1/1
					33			+S1-X68.1	C01			PK	=81.P11+L1/1
					34			+S1-X68.1	C02			BN	=81.P11+L1/1
					35			+S1-X68.1	C03			WH	=81.P11+L1/1

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +P1-X68	3	= XS1 + P1	function page 51/130
			design.	PED				D-SUB .37p F	98290	2953	page
			check.					Han 16A-agg-LB	WS450 KL x 5500 CNC Monolith		340
change	date	name	norm		originally.	created for.	created by.				

connector diagram

function text	cable name	cable type	terminal connection diagram +P1-X68 handwheel: designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	cable name	=81.P11+S1-W1E2	page/ path
					36			+S1-X68.1	C04		YEBK		=81.P11+L1/1
					37			+S1-X68.1	D16				=81.P11+L1/1
					Geh			+S1-X68.1	PE1				=01.A1+E11/31
					Geh								

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +P1-X68	4	= XS1 + P1	function page 52/130
			design.	PED				D-SUB .37p F Han 16A-agg-LB	98290 WS450 KL x 5500 CNC Monolith	2953	page 341
			check.								
change	date	name	norm		originally.	created for.	created by.				

connector diagram

function text	cable name	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable name	=01.A2-W9F	cable type	1Z-HF 4x0,75	page/ path
			terminal connection diagram +P1-X101 power supply panel											
			=71.M1-P2C	X101:1	1			-X65	A1		1			=01.A2+E11/9
			=71.M1-P2C	X101:2	2			-X65	A2		2			=01.A2+E11/9
					3									
					4									
					GEH									

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +P1-X101	5	= XS1
			design.	PED					+ P1
			check.				99143081204	98290 WS450 KL x 5500 CNC Monolith	2953
change	date	name	norm		originally.	created for.	created by.		

function page 53/130

page 342

connector diagram

function text							=21.Z1.1-W2D	cable name	terminal connection diagram +S1-X9 motor z-axis headstockside							cable name	=21.Z1.1+W1-W2D								page/ path
							TOPSERV® 109x1,5	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	TOPSERV® 109x1,5								
							1		+L1-X9	1	1			=21.Z1.1+E12-T1G-X107	1U2		1								=21.Z1.1+E11/2
							2		+L1-X9	3	3			=21.Z1.1+E12-T1G-X107	1V2		2								=21.Z1.1+E11/2
							3		+L1-X9	4	4			=21.Z1.1+E12-T1G-X107	1W2		3								=21.Z1.1+E11/2
											A														
											B														
											C														
											D														
							GNYE		+L1-X9	PE	PE			=21.Z1.1+E12-T1G-X107	PE		GNYE								=21.Z1.1+E11/2
										SH	GEH			=21.Z1.1+W1-W2D	SH1		SH								=21.Z1.1+E11/2

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +S1-X9	1	= XS1	function page 54/130
			design.	PED						+ S1	
			check.					BSTA078FR05580235400	98290	2953	page 343
change	date	name	norm		originally.	created for.	created by.	BKUA199MR24580200400	WS450 KL x 5500 CNC Monolith		

connector diagram

function text							=21.Z1.1-W3D	cable name	terminal connection diagram +S1-X10 motor z-axis tailstockside							cable name	=21.Z1.1+W1-W3D								page/ path
							TOPSERV® 109x1,5	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	TOPSERV® 109x1,5								
							1		+L1-X10	1	1			=21.Z1.1+E12-T1G-X108	2U2		1								=21.Z1.1+E11/3
							2		+L1-X10	3	3			=21.Z1.1+E12-T1G-X108	2V2		2								=21.Z1.1+E11/3
							3		+L1-X10	4	4			=21.Z1.1+E12-T1G-X108	2W2		3								=21.Z1.1+E11/3
											A														
											B														
											C														
											D														
							GNYE		+L1-X10	PE	PE			=21.Z1.1+E12-T1G-X108	PE		GNYE								=21.Z1.1+E11/3
											GEH			=21.Z1.1+E12-X3G	sh		SH								=21.Z1.1+E11/3

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +S1-X10	2	= XS1	function page 55/130
			design.	PED						+ S1	
			check.					BSTA078FR05580235400	98290	2953	page 344
change	date	name	norm		originally.	created for.	created by.	BKUA199MR24580200400	WS450 KL x 5500 CNC Monolith		

connector diagram

terminal connection diagram

+S1-X11

motor X-axis

function text							=21.X1.1-W2C	cable name	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable name	=21.X1.1+W1-W2C	=21.X1.1-W2C							page/ path
							TOPSERV® 109x1,5	cable type								cable type	TOPSERV® 109x1,5	TOPSERV® 109x1,5							
							1		+L1-X11	1	1			=21.X1.1+E12-T1G-X107	1U2		1								=21.X1.1+E11/2
							2		+L1-X11	3	3			=21.X1.1+E12-T1G-X107	1V2		2								=21.X1.1+E11/2
							3		+L1-X11	4	4			=21.X1.1+E12-T1G-X107	1W2		3								=21.X1.1+E11/2
											A														
											B														
											C														
											D														
							GNYE		+L1-X11	PE	PE			=21.X1.1+E12-T1G-X107	PE		GNYE								=21.X1.1+E11/2
											GEH			+L1-X11	GEH			SH							=21.X1.1+E11/2

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +S1-X11	3	= XS1 + S1	function page 56/130
			design.	PED			BSTA078FR05580235400	98290	2953	page
			check.				BKUA199MR24580200400	WS450 KL x 5500 CNC Monolith		345
change	date	name	norm		originally.	created for.	created by.			

connector diagram

function text	cable name	cable type	terminal connection diagram +S1-X12 plug connection power plug size 1 c-axis: designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable name	cable type	=21.C1.1+W1-W2D TOPSERV® 109x1,5	page/ path
			+L1-X12	1	1			=21.X1.1+E12-T1G-X108	1U2			1	=21.C1.1+E11/2
			+L1-X12	3	3			=21.X1.1+E12-T1G-X108	1V2			2	=21.C1.1+E11/2
			+L1-X12	4	4			=21.X1.1+E12-T1G-X108	1W2			3	=21.C1.1+E11/2
					A								
					B								
					C								
					D								
			+L1-X12	PE	PE			=21.X1.1+E12-T1G-X108	PE			GNYE	=21.C1.1+E11/2
			=21.C1.1+E12-X1G	sh	GEH			+L1-X12	GEH				=21.C1.1+E11/2

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +S1-X12	4	= XS1 / + S1	function page 57/130
			design.	PED						
			check.				BSTA078FR05580235400	98290	2953	page 346
change	date	name	norm		originally. / created for.	created by.	BKUA199MR24580200400	WS450 KL x 5500 CNC Monolith		

connector diagram

function text						=21.C1.2+L1-WB2	=21.C1.2-WB2	cable name	terminal connection diagram +S1-X20 motor grinding wheel							cable name	=21.C1.2+W1-W2B								page/ path
						TOPSERV 109 4x25	TOPSERV 109 4x25	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	TOPSERV 109 4x25									
							U		+L1-X20	U	U			+E12-X1.1	U:b		U									=21.C1.2+E11/2
							V		+L1-X20	V	V			+E12-X1.1	V:b		V									=21.C1.2+E11/2
							W		+L1-X20	W	W			+E12-X1.1	W:b		W									=21.C1.2+E11/2
											+															
											-															
							GNYE		+L1-X20	PE	PE			+E12-X1.1	PE:b		GNYE									=21.C1.2+E11/2
						SH			+L1-X20	GEH	GEH			=21.C1.2+E12-T1B	Geh											=21.C1.2+E11/2

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +S1-X20	5	= XS1	function page
			design.	PED						+ S1	58/130
			check.					DSTA001FR03740001400	98290	2953	page
change	date	name	norm		originally.	created for.	created by.	DKUA002MR03740001400	WS450 KL x 5500 CNC Monolith		347

connector diagram

function text							=21.C1.2-WE2	cable name	terminal connection diagram +S1-X21 motor grinding wheel							cable name	=21.C1.2+W1-W2E								page/ path
							TOPSERV 109 4x2.5	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	TOPSERV 109 4x2.5								
							U		+L1-X21	U	U			+E12-X1.1	U:b		U								=21.C1.2+E11/2
							V		+L1-X21	V	V			+E12-X1.1	V:b		V								=21.C1.2+E11/2
							W		+L1-X21	W	W			+E12-X1.1	W:b		W								=21.C1.2+E11/2
											+														
											-														
							GNYE		+L1-X21	PE	PE			+E12-X1.1	PE:b		GNYE								=21.C1.2+E11/2
											GEH			=21.C1.2+E1-W2E	SH		SH								=21.C1.2+E11/2

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +S1-X21	6	= XS1 + S1	function page 59/130
			design.	PED				DSTA001FR03740001400	98290	2953	page 348
			check.					DKUA002MR03740001400	WS450 KL x 5500 CNC Monolith		
change	date	name	norm		originally.	created for.	created by.				

connector diagram

function text							=21.C1.2-WL2	cable name	terminal connection diagram +S1-X22 encoder grinding wheel							cable name	=21.C1.2+W1-W2L								page/ path
							TOPGEBER 5Ø9x	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	TOPGEBER 5Ø9x0,5								
							BK		+L1-X22	1	1			=21.C1.2+E11-A2L-X2			BK								=21.C1.2+E11/2
							OG		+L1-X22	2	2			=21.C1.2+E11-A2L-X2			OG								=21.C1.2+E11/2
							GNBK		+L1-X22	3	3			=21.C1.2+E11-A2L-X2			GNBK								=21.C1.2+E11/2
											4														
							GN		+L1-X22	5	5			=21.C1.2+E11-A2L-X2			GN								=21.C1.2+E11/2
							YE		+L1-X22	6	6			=21.C1.2+E11-A2L-X2			YE								=21.C1.2+E11/2
							RD		+L1-X22	7	7			=21.C1.2+E11-A2L-X2			RD								=21.C1.2+E11/2
							BN		+L1-X22	8	8			=21.C1.2+E11-A2L-X2			BN								=21.C1.2+E11/2
											9			=21.C1.2+W1-W2L	SH3		SH3								=21.C1.2+E11/2
							BNBU		+L1-X22	10	10			=21.C1.2+E11-A2L-X2			BNBU								=21.C1.2+E11/2
							GNRD		+L1-X22	11	11			=21.C1.2+E11-A2L-X2			GNRD								=21.C1.2+E11/2
							BNRD		+L1-X22	12	12			=21.C1.2+E11-A2L-X2			BNRD								=21.C1.2+E11/2
											GEH			=21.C1.2+E11-A2L-X2			SH								=21.C1.2+E11/2

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +S1-X22	7	= XS1	function page
			design.	PED					+ S1	60/130
			check.				623 Stecker	98290	2953	page
change	date	name	norm		originally.	created for.	created by.	AKUB630MRXX620296400 SET	WS450 KL x 5500 CNC Monolith	349

connector diagram

function text							=22.C2.1-W2M	cable name	terminal connection diagram +S1-X23							cable name	=22.C2.1+W1-W2M								page/ path
							TOPGEBER 5109x	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	TOPGEBER 5109x								
							BK		+T1-X23	1	1			=22.C2.1+E12-A2L-X2			BK								=22.C2.1+E11/2
							OG		+T1-X23	2	2			=22.C2.1+E12-A2L-X2			OG								=22.C2.1+E11/2
							GNBK		+T1-X23	3	3			=22.C2.1+E12-A2L-X2			GNBK								=22.C2.1+E11/2
											4														
							GN		+T1-X23	5	5			=22.C2.1+E12-A2L-X2			GN								=22.C2.1+E11/2
							YE		+T1-X23	6	6			=22.C2.1+E12-A2L-X2			YE								=22.C2.1+E11/2
							RD		+T1-X23	7	7			=22.C2.1+E12-A2L-X2			RD								=22.C2.1+E11/2
							BN		+T1-X23	8	8			=22.C2.1+E12-A2L-X2			BN								=22.C2.1+E11/2
										SH	9			+T1-X23	9		SH3								=22.C2.1+E11/2
							BNBU		+T1-X23	10	10			=22.C2.1+E12-A2L-X2			BNBU								=22.C2.1+E11/2
							GNRD		+T1-X23	11	11			=22.C2.1+E12-A2L			GNRD								=22.C2.1+E11/2
							BNRD		+T1-X23	12	12			=22.C2.1+E12-A2L-X2			BNRD								=22.C2.1+E11/2
										SH	GEH			+T1-X23	GEH		SH								=22.C2.1+E11/2

Created with a trial version of Synchusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +S1-X23	8	= XS1	function page
			design.	PED						+ S1	61/130
			check.					623 Stecker	98290	2953	page
change	date	name	norm		originally.	created for.	created by.	AKUB630MRXX620296400 SET	WS450 KL x 5500 CNC Monolith		350

connector diagram

function text							=25.Z5.1-W2D	cable name	terminal connection diagram +S1-X31 Motor z-axis tailstock adjustment							cable name	=25.Z5.1+W1-W2D								page/ path
							TOPSERV 113 PUR 6x1,5	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	TOPSERV 113 PUR 6x1,5								
							U		+T2-X10	1	1			=25.Z5.1+E12-T1G-X107	1U2		U								=25.Z5.1+E11/2
							V		+T2-X10	3	3			=25.Z5.1+E12-T1G-X107	1V2		V								=25.Z5.1+E11/2
							W		+T2-X10	4	4			=25.Z5.1+E12-T1G-X107	1W2		W								=25.Z5.1+E11/2
							1		+T2-X10	A	A			=25.Z5.1+E12-T1G-X207	4		1								=25.Z5.1+E11/2
							2		+T2-X10	B	B			=25.Z5.1+E12-T1G-X207	1		2								=25.Z5.1+E11/2
											C														
											D														
							GNYE		+T2-X10	PE	PE			=25.Z5.1+E12-T1G-X107	PE		GNYE								=25.Z5.1+E11/2
									=25.Z5.1+E13-X2F	sh	GEH			+T2-X10	GEH		SH								=25.Z5.1+E11/2

Created with a trial version of Syncfusion PDF library

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +S1-X31	9	= XS1	function page 62/130
			design.	PED						+ S1	
			check.					BSTA078FR05580235400	98290	2953	page 351
change	date	name	norm		originally.	created for.	created by.	BKUA199MR24580200400	WS450 KL x 5500 CNC Monolith		

connector diagram

function text							=01.A1-W31B	cable name	terminal connection diagram +S1-X40 energy carriage							cable name	=01.A1+W1-W31B								page/ path
							JZ-HF 34x1,5	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	JZ-HF 34x1,5								
							1		+L1-X40	1	1			+E11-X40	1		1								=01.A1+E11/7
							2		+L1-X40	2	2			+E11-X40	2		2								=01.A1+E11/7
							3		+L1-X40	3	3			+E11-X40	3		3								=01.A1+E11/7
							4		+L1-X40	4	4			+E11-X40	4		4								=01.A1+E11/7
							5		+L1-X40	5	5			+E11-X40	5		5								=21.C1.2+E11/7
							6		+L1-X40	6	6			+E11-X40	6		6								=21.C1.2+E11/7
							7		+L1-X40	7	7			+E11-X40	7		7								=21.C1.2+E11/7
							8		+L1-X40	8	8			+E11-X40	8		8								=21.C1.2+E11/8
							9		+L1-X40	9	9			+E11-X40	9		9								=21.C1.2+E11/8
							10		+L1-X40	10	10			+E11-X40	10		10								=21.C1.2+E11/8
							11		+L1-X40	11	11			+E11-X40	11		11								=21.X1.1+E11/5
							12		+L1-X40	12	12			+E11-X40	12		12								=21.X1.1+E11/5
							13		+L1-X40	13	13			+E11-X40	13		13								=21.X1.1+E11/5
							14		+L1-X40	14	14			+E11-X40	14		14								=21.Z1.1+E11/6
							15		+L1-X40	15	15			+E11-X40	15		15								=21.Z1.1+E11/6
							16		+L1-X40	16	16			+E11-X40	16		16								=21.Z1.1+E11/6
							17		+L1-X40	17	17			+E11-X40	17		17								=61.L6+E11/1
							18		+L1-X40	18	18			+E11-X40	18		18								=61.L6+E11/1
							19		+L1-X40	19	19			+E11-X40	19		19								=28.C8.1+Z1/1
							20		+L1-X40	20	20			+E11-X40	20		20								=28.C8.1+Z1/1
							21		+L1-X40	21	21			+E11-X40	21		21								=28.C8.1+Z1/1
							22		+L1-X40	22	22			+E11-X40	22		22								=01.A1+E11/8
							23		+L1-X40	23	23			+E11-X40	23		23								=01.A1+E11/8
							24		+L1-X40	24	24			+E11-X40	24		24								=01.A1+E11/8
							25		+L1-X40	25	25			+E11-X40	25		25								=01.A1+E11/8
											26														
											27														
											28														
											29														
											30														
											31														
											32														
							GNYE		+L1-X40	PE1	PE1			+E11-X40	PE1		GNYE								=01.A1+E11/31
											PE2														

Created with a trial version of Synchron PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +S1-X40	10	= XS1	function page 63/130
			design.	PED						+ S1	
			check.					09320323101	98290	2953	page 352
change	date	name	norm		originally.	created for.	created by.	09320323001	WS450 KL x 5500 CNC Monolith		

connector diagram

function text						=01.A1+W1-W31D	=01.A1-W31D	cable name	terminal connection diagram +S1-X45 control carriage							cable name	=01.A1+W1-W31D	=01.A1-W31D							page/ path
						JZ-HF 50x1	JZ-HF 50x1	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	JZ-HF 50x1	JZ-HF 50x1							
							1		+L1-X45	A01	A01			+E13-X45	A01		1								=01.A2+E11/3
							2		+L1-X45	A02	A02			+E13-X45	A02		2								=01.A2+E11/3
							3		+L1-X45	A03	A03			+E13-X45	A03		3								=01.A2+E11/3
							4		+L1-X45	A04	A04			+E13-X45	A04		4								=01.A2+E11/3
							5		+L1-X45	A05	A05			+E13-X45	A05		5								=01.A2+E11/5
							6		+L1-X45	A06	A06			+E13-X45	A06		6								=01.A2+E11/5
							7		+L1-X45	A07	A07			+E13-X45	A07		7								=01.A2+E11/5
							8		+L1-X45	A08	A08			+E13-X45	A08		8								=01.A2+E11/5
							9		+L1-X45	A09	A09			+E13-X45	A09		9								=01.A2+E11/5
							10		+L1-X45	A10	A10			+E13-X45	A10		10								=01.A2+E11/5
							11		+L1-X45	A11	A11			+E13-X45	A11		11								=01.A2+E11/6
							12		+L1-X45	A12	A12			+E13-X45	A12		12								=01.A2+E11/6
							13		+L1-X45	A13	A13			+E13-X45	A13		13								=01.A2+E11/6
							14		+L1-X45	A14	A14			+E13-X45	A14		14								=01.A2+E11/6
							15		+L1-X45	A15	A15			+E13-X45	A15		15								=01.A2+E11/7
							16		+L1-X45	A16	A16			+E13-X45	A16		16								=01.A2+E11/7
							17		+L1-X45	B01	B01			+E13-X45	B01		17								=01.A2+E11/8
							18		+L1-X45	B02	B02			+E13-X45	B02		18								=01.A2+E11/8
							19		+L1-X45	B03	B03			+E13-X45	B03		19								=01.A2+E11/8
							20		+L1-X45	B04	B04			+E13-X45	B04		20								=01.A2+E11/8
							21		+L1-X45	B05	B05			+E13-X45	B05		21								=01.A2+E11/9
							22		+L1-X45	B06	B06			+E13-X45	B06		22								=01.A2+E11/9
							23		+L1-X45	B07	B07			+E13-X45	B07		23								=01.A2+E13/11
							24		+L1-X45	B08	B08			+E13-X45	B08		24								=01.A2+E13/11
							25		+L1-X45	B09	B09			+E13-X45	B09		25								=01.A2+E13/11
							26		+L1-X45	B10	B10			+E13-X45	B10		26								=01.A2+E13/11
							27		+L1-X45	B11	B11			+E13-X45	B11		27								=01.A3+E11/1
						28			+E13-X45	B12	B12			+L1-X45	B12			28							=01.A3+E11/1
							29		+L1-X45	B13	B13			+E13-X45	B13		29								=01.A3+E11/1
						30			+E13-X45	B14	B14			+L1-X45	B14			30							=01.A3+E11/1
							31		+L1-X45	B15	B15			+E13-X45	B15		31								=01.A3+E11/10
							32		+L1-X45	B16	B16			+E13-X45	B16		32								=01.A3+E11/10
							33		+L1-X45	C01	C01			+E13-X45	C01		33								=01.A3+E11/10
							34		+L1-X45	C02	C02			+E13-X45	C02		34								=01.A3+E11/10
							35		+L1-X45	C03	C03			+E13-X45	C03		35								=01.A3+E11/11

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +S1-X45	11	= XS1	function page 64/130
			design.	PED					+ S1	
			check.				19 37 024 0272	98290	2953	page 353
change	date	name	norm		originally. created for.	created by.	09 21 064 3001	WS450 KL x 5500 CNC Monolith		

connector diagram

terminal connection diagram

+S1-X45

control carriage

function text	=01.A1+W1-W31D	=01.A1-W31D	cable name	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable name	=01.A1+W1-W31D	=01.A1-W31D	page/ path
	JZ-HF 50x1	JZ-HF 50x1	cable type								cable type	JZ-HF 50x1	JZ-HF 50x1	
		36		+L1-X45	C04	C04			+E13-X45	C04		36		=01.A3+E11/11
		37		+L1-X45	C05	C05			+E13-X45	C05		37		=01.A3+E11/11
		38		+L1-X45	C06	C06			+E13-X45	C06		38		=01.A3+E11/11
		39		+L1-X45	C07	C07			+E13-X45	C07		39		=01.A3+E11/11
	40			+E13-X45	C08	C08			+L1-X45	C08			40	=01.A3+E11/11
	41			+E13-X45	C09	C09			+L1-X45	C09			41	=01.A3+E11/11
		42		+L1-X45	C10	C10			+E13-X45	C10		42		=21.X1.1+E11/4
		43		+L1-X45	C11	C11			+E13-X45	C11		43		=21.X1.1+E11/4
		44		+L1-X45	C12	C12			+E13-X45	C12		44		=01.A3+E11/11
		45		+L1-X45	C13	C13			+E13-X45	C13		45		=01.A3+E11/11
		46		+L1-X45	C14	C14			+E13-X45	C14		46		=01.A3+E11/11
				+L1-X45	C15	C15			+E13-X45	C15				=91.S1+Z1/1
				+L1-X45	C16	C16			+E13-X45	C16				=91.S1+Z1/1
						D01								
						D02								
						D03								
						D04								
						D05								
						D06								
						D07								
						D08								
						D09								
						D10								
						D11								
						D12								
						D13								
						D14								
						D15								
						D16								
		GNYE		+L1-X45	PE1	PE1			+E13-X45	PE1		GNYE		=01.A1+E11/31
						PE2								

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +S1-X45	12	= XS1 + S1	function page 65/130
			design.	PED						
			check.				19 37 024 0272	98290	2953	page
change	date	name	norm		originally. created for.	created by.	09 21 064 3001	WS450 KL x 5500 CNC Monolith		354

connector diagram

function text	cable name	cable type	terminal connection diagram +S1-X50 energy measuring unit: designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable name	cable type	=91.S1+W1-W1D	JZ-HF 4x2,5	page/ path
			+L1-X1	22:a	1			+E11-X1	7:b					=91.S1+Z1/1
			+L1-X1	23:a	2			+E11-X1	8:b					=91.S1+Z1/1
					3									
					4									
					5									
					6									
			+L1-XPE	PE4:b	PE1			+E11-X1	PE:b					=91.S1+Z1/1
					PE2									

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +S1-X50	13	= XS1	function page 66/130
			design.	PED						+ S1	
			check.					09310062601	98290	2953	page 355
change	date	name	norm		originally.	created for.	created by.	Han 6 HSB-BU	WS450 KL x 5500 CNC Monolith		

connector diagram

function text							=21.Z1.1-W2L	cable name	terminal connection diagram +S1-X55 Position encoder Z-axis headstock side							cable name	=21.Z1.1+W1-W2L								page/ path
							TOPGEBER 5129x	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	TOPGEBER 5109x								
							BK		+L1-X55	1	1			=21.Z1.1+E12-A2L-X2			BK								=21.Z1.1+E11/2
							OG		+L1-X55	2	2			=21.Z1.1+E12-A2L-X2			OG								=21.Z1.1+E11/2
							GNBK		+L1-X55	3	3			=21.Z1.1+E12-A2L-X2			GNBK								=21.Z1.1+E11/2
											4														
							GN		+L1-X55	5	5			=21.Z1.1+E12-A2L-X2			GN								=21.Z1.1+E11/2
							YE		+L1-X55	6	6			=21.Z1.1+E12-A2L-X2			YE								=21.Z1.1+E11/2
							RD		+L1-X55	7	7			=21.Z1.1+E12-A2L-X2			RD								=21.Z1.1+E11/2
							BN		+L1-X55	8	8			=21.Z1.1+E12-A2L-X2			BN								=21.Z1.1+E11/2
										SH3	9			=21.Z1.1+W1-W2M	SH3										=21.Z1.1+E11/2
							BNBU		+L1-X55	10	10			=21.Z1.1+E12-A2L-X2			BNBU								=21.Z1.1+E11/2
							GNRD		+L1-X55	11	11			=21.Z1.1+E12-A2L			GNRD								=21.Z1.1+E11/2
							BNRD		+L1-X55	12	12			=21.Z1.1+E12-A2L-X2			BNRD								=21.Z1.1+E11/2
										SH	GEH			=21.Z1.1+E12-A2L-X2			SH								=21.Z1.1+E11/2

Created with a trial version of Synchuson PDE library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +S1-X55	14	= XS1	function page
			design.	PED						+ S1	67/130
			check.					623 Stecker	98290	2953	page
change	date	name	norm		originally.	created for.	created by.	AKUB630MRXX620296400 SET	WS450 KL x 5500 CNC Monolith		356

connector diagram

function text							=21.Z1.1-W3L	cable name	terminal connection diagram +S1-X56 Position encoder Z-axis tailstock side							cable name	=21.Z1.1+W1-W3L								page/ path
							TOPGEBER 5129x	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	TOPGEBER 5109x								
							BK		+L1-X56	1	1			=21.Z1.1+E12-T1G-X8	5		BK								=21.Z1.1+E11/3
							OG		+L1-X56	2	2			=21.Z1.1+E12-T1G-X8	19		OG								=21.Z1.1+E11/3
							GNBK		+L1-X56	3	3			=21.Z1.1+E12-T1G-X8	17		GNBK								=21.Z1.1+E11/3
											4														
							GN		+L1-X56	5	5			=21.Z1.1+E12-T1G-X8	6		GN								=21.Z1.1+E11/3
							YE		+L1-X56	6	6			=21.Z1.1+E12-T1G-X8	7		YE								=21.Z1.1+E11/3
							RD		+L1-X56	7	7			=21.Z1.1+E12-T1G-X8	20		RD								=21.Z1.1+E11/3
							BN		+L1-X56	8	8			=21.Z1.1+E12-T1G-X8	4		BN								=21.Z1.1+E11/3
									+L1-X56	9	9														=21.Z1.1+E11/3
							BNBU		+L1-X56	10	10			=21.Z1.1+E12-T1G-X8	1		BNBU								=21.Z1.1+E11/3
							GNRD		+L1-X56	11	11			=21.Z1.1+E12-T1G-X8	18		GNRD								=21.Z1.1+E11/3
							BNRD		+L1-X56	12	12			=21.Z1.1+E12-T1G-X8	2		BNRD								=21.Z1.1+E11/3
											GEH			=21.Z1.1+E12-T1G-X8	Geh.		SH								=21.Z1.1+E11/3

Created with a trial version of Synchfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +S1-X56	15	= XS1	function page 68/130
			design.	PED						+ S1	
			check.					623 Stecker	98290	2953	page 357
change	date	name	norm		originally.	created for.	created by.	AKUB630MRXX620296400 SET	WS450 KL x 5500 CNC Monolith		

connector diagram

function text							=21.X1.1-W2L	cable name	terminal connection diagram +S1-X57 position encoder X-axis							cable name	=21.X1.1+W1-W2L	=21.X1.1+L1-W2L							page/ path
							TOPGEBER 5129x	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	ESK_6 16x	TOPGEBER 5129x							
							BK		+L1-X57	1	1			=21.X1.1+E12-A2L-X2			BK								=21.X1.1+E11/2
							OG		+L1-X57	2	2			=21.X1.1+E12-A2L-X2			OG								=21.X1.1+E11/2
							GNBK		+L1-X57	3	3			=21.X1.1+E12-A2L-X2			GNBK								=21.X1.1+E11/2
											4														
							GN		+L1-X57	5	5			=21.X1.1+E12-A2L-X2			GN								=21.X1.1+E11/2
							YE		+L1-X57	6	6			=21.X1.1+E12-A2L-X2			YE								=21.X1.1+E11/2
							RD		+L1-X57	7	7			=21.X1.1+E12-A2L-X2			RD								=21.X1.1+E11/2
							BN		+L1-X57	8	8			=21.X1.1+E12-A2L-X2			BN								=21.X1.1+E11/2
										SH3	9			=21.X1.1+E1-WL2	SH3										=21.X1.1+E11/2
							BNBU		+L1-X57	10	10			=21.X1.1+E12-A2L-X2			BNBU								=21.X1.1+E11/2
							GNRD		+L1-X57	11	11			=21.X1.1+E12-A2L-X2			GNRD								=21.X1.1+E11/2
							BNRD		+L1-X57	12	12			=21.X1.1+E12-A2L-X2			BNRD								=21.X1.1+E11/2
										SH	GEH			+U1-X57	GEH			SH								=21.X1.1+E11/2

Created with a trial version of Synchution PDE-library.

68 70

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +S1-X57	16	= XS1	function page
			design.	PED						+ S1	69/130
			check.					623 Stecker	98290	2953	page
change	date	name	norm		originally.	created for.	created by.	AKUB630MRXX620296400 SET	WS450 KL x 5500 CNC Monolith		358

connector diagram

function text							=21.C1.1-W2M	cable name	terminal connection diagram +S1-X58 position encoder C-axis							cable name	=21.C1.1+W1-W2M								page/ path
							TOPGEBER 5Ø9x	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	TOPGEBER 5Ø9x0,5								
							BK		+L1-X58	1	1			=21.X1.1+E12-T1G-X8	5		BK								=21.C1.1+E11/2
							OG		+L1-X58	2	2			=21.X1.1+E12-T1G-X8	19		OG								=21.C1.1+E11/2
							GNBK		+L1-X58	3	3			=21.X1.1+E12-T1G-X8	17		GNBK								=21.C1.1+E11/2
											4														
							GN		+L1-X58	5	5			=21.X1.1+E12-T1G-X8	6		GN								=21.C1.1+E11/2
							YE		+L1-X58	6	6			=21.X1.1+E12-T1G-X8	7		YE								=21.C1.1+E11/2
							RD		+L1-X58	7	7			=21.X1.1+E12-T1G-X8	20		RD								=21.C1.1+E11/2
							BN		+L1-X58	8	8			=21.X1.1+E12-T1G-X8	4		BN								=21.C1.1+E11/2
											9			=21.C1.1+L1-WM2	SH3		SH3								=21.C1.1+E11/2
							BNBU		+L1-X58	10	10			=21.X1.1+E12-T1G-X8	1		BNBU								=21.C1.1+E11/2
							GNRD		+L1-X58	11	11			=21.X1.1+E12-T1G-X8	18		GNRD								=21.C1.1+E11/2
							BNRD		+L1-X58	12	12			=21.X1.1+E12-T1G-X8	2		BNRD								=21.C1.1+E11/2
											GEH			=21.X1.1+E12-T1G-X8	Geh.		SH								=21.C1.1+E11/2

Created with a trial version of Synchution PDE library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +S1-X58	17	= XS1	function page
			design.	PED						+ S1	70/130
			check.					623 Stecker	98290	2953	page
change	date	name	norm		originally.	created for.	created by.	AKUB630MRXX620296400 SET	WS450 KL x 5500 CNC Monolith		359

connector diagram

function text							=25.Z5.1+W1-W2L	cable name	terminal connection diagram +S1-X59 Position encoder Z-axis tailstock adjustment							cable name	=25.Z5.1-W2L								page/ path
							TOPGEBER 5109x	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	TOPGEBER 5129x								
							BK		=25.Z5.1+E12-T1G-X7	5	1			+T2-X11	1		BK								=25.Z5.1+E11/2
							OG		=25.Z5.1+E12-T1G-X7	19	2			+T2-X11	2		OG								=25.Z5.1+E11/2
							GNBK		=25.Z5.1+E12-T1G-X7	17	3			+T2-X11	3		GNBK								=25.Z5.1+E11/2
											4														
							GN		=25.Z5.1+E12-T1G-X7	6	5			+T2-X11	5		GN								=25.Z5.1+E11/2
							YE		=25.Z5.1+E12-T1G-X7	7	6			+T2-X11	6		YE								=25.Z5.1+E11/2
							RD		=25.Z5.1+E12-T1G-X7	20	7			+T2-X11	7		RD								=25.Z5.1+E11/2
							BN		=25.Z5.1+E12-T1G-X7	4	8			+T2-X11	8		BN								=25.Z5.1+E11/2
											9			=25.Z5.1+L1-W3L	SH3										=25.Z5.1+E11/2
							BNBU		=25.Z5.1+E12-T1G-X7	1	10			+T2-X11	10		BNBU								=25.Z5.1+E11/2
							GNRD		=25.Z5.1+E12-T1G-X7	18	11			+T2-X11	11		GNRD								=25.Z5.1+E11/2
							BNRD		=25.Z5.1+E12-T1G-X7	2	12			+T2-X11	12		BNRD								=25.Z5.1+E11/2
							SH3		=25.Z5.1+E12-T1G-X7	Geh.	GEH			+T2-X11	GEH		SH								=25.Z5.1+E11/2

Created with a trial version of Synchron PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +S1-X59	18	= XS1 + S1	function page 71/130
			design.	PED						
			check.				623 Stecker	98290	2953	page
change	date	name	norm		originally.	created for.	created by.	AKUB630MRXX620296400 SET	WS450 KL x 5500 CNC Monolith	360

connector diagram

terminal connection diagram

+S1-X65

control panel

function text	=01.A1-W31T	cable name	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable name	=01.A1+W1-W31T	page/ path
	JZ-HF 18x1,5	cable type								cable type	JZ-HF 18x1,5	
	1		+P1-X65	A1	1			+E13-X65	1		1	=01.A2+E11/9
	2		+P1-X65	A2	2			+E13-X65	2		2	=01.A2+E11/9
	3		+P1-X65	A3	3			+E13-X65	3		3	=01.A2+E11/9
	4		+P1-X65	A4	4			+E13-X65	4		4	=01.A2+E11/9
	5		+P1-X65	A5	5			+E13-X65	5		5	=01.A3+E11/1
	6		+P1-X65	A6	6			+E13-X65	6		6	=01.A3+E11/1
	7		+P1-X65	A7	7			+E13-X65	7		7	=01.A3+E11/1
	8		+P1-X65	A8	8			+E13-X65	8		8	=01.A3+E11/1
					9							
					10							
					11							
					12							
					13							
					14							
					15							
					16							
	GNYE		+P1-X65	PE1	PE1			+E13-X65	PE1		GNYE	=01.A1+E11/31
					PE2							

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +S1-X65	19	= XS1 + S1	function page 72/130
			design.	PED						
			check.				09330162748	98290	2953	page 361
change	date	name	norm		originally. created for.	created by.	09 33 016 2648	WS450 KL x 5500 CNC Monolith		

connector diagram

function text						=81.P11+W1-W1E1	=81.P11-W1E1	cable name	terminal connection diagram +S1-X68 handwheel							cable name	=81.P11+W1-W1E1	=81.P11-W1E1							page/ path
								cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type									
handwheel terminal box carriage							BU		+L1-X68	A01	A01			+E13-X68	A01		BU								=01.A3+E11/1
						VT			+L1-X68	A02	A02			+E13-X68	A02			VT							=01.A3+E11/1
handwheel terminal box carriage							RD		+L1-X68	A03	A03			+E13-X68	A03		RD								=01.A3+E11/1
						BK			+L1-X68	A04	A04			+E13-X68	A04			BK							=01.A3+E11/1
handwheel terminal box carriage							RDBU		+L1-X68	A05	A05			+E13-X68	A05		RDBU								=81.P11+L1/1
=							WHYE		+L1-X68	A06	A06			+E13-X68	A06		WHYE								=81.P11+L1/1
=							WHGN		+L1-X68	A07	A07			+E13-X68	A07		WHGN								=81.P11+L1/1
=							BNGN		+L1-X68	A08	A08			+E13-X68	A08		BNGN								=81.P11+L1/1
=							YEBN		+L1-X68	A09	A09		I0.7	+E13-X68	A09		YEBN								=81.P11+L1/1
=							WHGY		+L1-X68	A10	A10		I1.0	+E13-X68	A10		WHGY								=81.P11+L1/1
=							GYBN		+L1-X68	A11	A11		I1.1	+E13-X68	A11		GYBN								=81.P11+L1/1
=							WHPK		+L1-X68	A12	A12		I1.2	+E13-X68	A12		WHPK								=81.P11+L1/1
=							GYPK		+L1-X68	A13	A13			+E13-X68	A13		GYPK								=81.P11+L1/1
=							PKBN		+L1-X68	A14	A14		I1.3	+E13-X68	A14		PKBN								=81.P11+L1/1
=							WHBU		+L1-X68	A15	A15		I1.4	+E13-X68	A15		WHBU								=81.P11+L1/1
=							BNBU		+L1-X68	A16	A16		I1.5	+E13-X68	A16		BNBU								=81.P11+L1/1
=							BNRD		+L1-X68	B01	B01		I0.1	+E13-X68	B01		BNRD								=81.P11+L1/1
=							WHRD		+L1-X68	B02	B02			+E13-X68	B02		WHRD								=81.P11+L1/1
=							YEPK		+L1-X68	B03	B03		Q2.1	+E13-X68	B03		YEPK								=81.P11+L1/1
=							WHBK		+L1-X68	B04	B04		I0.2	+E13-X68	B04		WHBK								=81.P11+L1/1
=							GNBU		+L1-X68	B05	B05		Q2.5	+E13-X68	B05		GNBU								=81.P11+L1/1
=							BNBK		+L1-X68	B06	B06		I0.3	+E13-X68	B06		BNBK								=81.P11+L1/1
=							YEBU		+L1-X68	B07	B07		Q2.4	+E13-X68	B07		YEBU								=81.P11+L1/1
=							GYGN		+L1-X68	B08	B08		I0.4	+E13-X68	B08		GYGN								=81.P11+L1/1
=							GNRD		+L1-X68	B09	B09		Q2.3	+E13-X68	B09		GNRD								=81.P11+L1/1
=							YEGY		+L1-X68	B10	B10		I0.5	+E13-X68	B10		YEGY								=81.P11+L1/1
=							YERD		+L1-X68	B11	B11		Q2.2	+E13-X68	B11		YERD								=81.P11+L1/1
=							PKGN		+L1-X68	B12	B12		I0.6	+E13-X68	B12		PKGN								=81.P11+L1/1
=							GNBK		+L1-X68	B13	B13			+E13-X68	B13		GNBK								=81.P11+L1/1
=							GN		+L1-X68	B14	B14		I8.1	+E13-X68	B14		GN								=81.P11+L1/1
=							YE		+L1-X68	B15	B15			+E13-X68	B15		YE								=81.P11+L1/1
=							GY		+L1-X68	B16	B16			+E13-X68	B16		GY								=81.P11+L1/1
=							PK		+L1-X68	C01	C01			+E13-X68	C01		PK								=81.P11+L1/1
=							BN		+L1-X68	C02	C02			+E13-X68	C02		BN								=81.P11+L1/1
=							WH		+L1-X68	C03	C03			+E13-X68	C03		WH								=81.P11+L1/1

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +S1-X68	20	= XS1	function page
			design.	PED						+ S1	73/130
			check.					19 37 024 0272	98290	2953	page
change	date	name	norm		originally.	created for.	created by.	09 21 064 3001	WS450 KL x 5500 CNC Monolith		362

connector diagram

function text							=81.P11-W1E1	cable name	terminal connection diagram +S1-X68 handwheel							cable name	=81.P11+W1-W1E1								page/ path
								cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type									
handwheel terminal box carriage							YEBK		+L1-X68	C04	C04			+E13-X68	C04		YEBK								=81.P11+L1/1
											C05														
											C06														
											C07														
											C08														
											C09														
											C10														
											C11														
											C12														
											C13														
											C14														
											C15														
											C16														
											D01														
											D02														
											D03														
											D04														
											D05														
											D06														
											D07														
											D08														
											D09														
											D10														
											D11														
											D12														
											D13														
											D14														
											D15														
handwheel terminal box carriage									+L1-X68	D16	D16			+E13-X68	D16										=81.P11+L1/1
							SH		+L1-X68	PE1	PE1			+E13-X68	PE1		SH								=01.A1+E11/31
											PE2														

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +S1-X68	21	= XS1	function page	
			design.	PED					+ S1	74/130	
			check.				19 37 024 0272	98290		page	
change	date	name	norm		originally.	created for.	created by.	09 21 064 3001	WS450 KL x 5500 CNC Monolith	2953	363

connector diagram

function text	=81.P11-W1E2	cable name	terminal connection diagram +S1-X68.1 handwheel plug-in station main control panel							cable name	=81.P11+W1-W1E2	page/ path
		cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type		
handwheel terminal box carriage	BU		+P1-X68	1	A01			+E13-X68.1	A01		BU	=01.A3+E11/1
	VT		+P1-X68	2	A02			+E13-X68.1	A02		VT	=01.A3+E11/1
handwheel terminal box carriage	RD		+P1-X68	3	A03			+E13-X68.1	A03		RD	=01.A3+E11/1
	BK		+P1-X68	4	A04			+E13-X68.1	A04		BK	=01.A3+E11/1
	RDBU		+P1-X68	5	A05			+E13-X68.1	A05		RDBU	=81.P11+L1/1
	WHYE		+P1-X68	6	A06			+E13-X68.1	A06		WHYE	=81.P11+L1/1
	WHGN		+P1-X68	7	A07			+E13-X68.1	A07		WHGN	=81.P11+L1/1
	BNGN		+P1-X68	8	A08			+E13-X68.1	A08		BNGN	=81.P11+L1/1
	YEBN		+P1-X68	9	A09		I0.7	+E13-X68.1	A09		YEBN	=81.P11+L1/1
	WHGY		+P1-X68	10	A10		I1.0	+E13-X68.1	A10		WHGY	=81.P11+L1/1
	GYBN		+P1-X68	11	A11		I1.1	+E13-X68.1	A11		GYBN	=81.P11+L1/1
	WHPK		+P1-X68	12	A12		I1.2	+E13-X68.1	A12		WHPK	=81.P11+L1/1
	GYPK		+P1-X68	13	A13			+E13-X68.1	A13		GYPK	=81.P11+L1/1
	PKBN		+P1-X68	14	A14		I1.3	+E13-X68.1	A14		PKBN	=81.P11+L1/1
	WHBU		+P1-X68	15	A15		I1.4	+E13-X68.1	A15		WHBU	=81.P11+L1/1
	BNBU		+P1-X68	16	A16		I1.5	+E13-X68.1	A16		BNBU	=81.P11+L1/1
	BNRD		+P1-X68	17	B01		I0.1	+E13-X68.1	B01		BNRD	=81.P11+L1/1
	WHRD		+P1-X68	18	B02			+E13-X68.1	B02		WHRD	=81.P11+L1/1
	YEPK		+P1-X68	19	B03		Q2.1	+E13-X68.1	B03		YEPK	=81.P11+L1/1
	WHBK		+P1-X68	20	B04		I0.2	+E13-X68.1	B04		WHBK	=81.P11+L1/1
	GNBU		+P1-X68	21	B05		Q2.5	+E13-X68.1	B05		GNBU	=81.P11+L1/1
	BNBK		+P1-X68	22	B06		I0.3	+E13-X68.1	B06		BNBK	=81.P11+L1/1
	YEBU		+P1-X68	23	B07		Q2.4	+E13-X68.1	B07		YEBU	=81.P11+L1/1
	GYGN		+P1-X68	24	B08		I0.4	+E13-X68.1	B08		GYGN	=81.P11+L1/1
	GNRD		+P1-X68	25	B09		Q2.3	+E13-X68.1	B09		GNRD	=81.P11+L1/1
	YEGY		+P1-X68	26	B10		I0.5	+E13-X68.1	B10		YEGY	=81.P11+L1/1
	YERD		+P1-X68	27	B11		Q2.2	+E13-X68.1	B11		YERD	=81.P11+L1/1
	PKGN		+P1-X68	28	B12		I0.6	+E13-X68.1	B12		PKGN	=81.P11+L1/1
	GNBK		+P1-X68	29	B13			+E13-X68.1	B13		GNBK	=81.P11+L1/1
	GN		+P1-X68	30	B14		I8.1	+E13-X68.1	B14		GN	=81.P11+L1/1
	YE		+P1-X68	31	B15			+E13-X68.1	B15		YE	=81.P11+L1/1
	GY		+P1-X68	32	B16			+E13-X68.1	B16		GY	=81.P11+L1/1
	PK		+P1-X68	33	C01			+E13-X68.1	C01		PK	=81.P11+L1/1
	BN		+P1-X68	34	C02			+E13-X68.1	C02		BN	=81.P11+L1/1
	WH		+P1-X68	35	C03			+E13-X68.1	C03		WH	=81.P11+L1/1

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +S1-X68.1	22	= XS1
			design.	PED					+ S1
			check.				19 37 024 0272	98290	2953
change	date	name	norm		originally.	created for.	created by.	09 21 064 3001	WS450 KL x 5500 CNC Monolith

function page 75/130

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connector diagram

function text							=81.P11-W1E2	cable name	terminal connection diagram +S1-X68.1 handwheel plug-in station main control panel							cable name	=81.P11+W1-W1E2								page/ path
								cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type									
							YEBK		+P1-X68	36	C04			+E13-X68.1	C04		YEBK								=81.P11+L1/1
											C05														
											C06														
											C07														
											C08														
											C09														
											C10														
											C11														
											C12														
											C13														
											C14														
											C15														
											C16														
											D01														
											D02														
											D03														
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											D07														
											D08														
											D09														
											D10														
											D11														
											D12														
											D13														
											D14														
											D15														
									+P1-X68	37	D16			+E13-X68.1	D16										=81.P11+L1/1
									+P1-X68	Geh	PE1			+E13-X68.1	PE1		SH								=01.A1+E11/31
											PE2														

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +S1-X68.1	23	= XS1 + S1	function page 76/130
			design.	PED							
			check.					19 37 024 0272	98290 WS450 KL x 5500 CNC Monolith	2953	page 365
change	date	name	norm		originally.	created for.	created by.	09 21 064 3001			

connector diagram

terminal connection diagram

+S1-X80

energy headstock

function text	=01.A1-W31J	cable name	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable name	=01.A1+W1-W31J	page/ path
	JZ-HF 18x1,5	cable type								cable type	JZ-HF 18x1,5	
	1		+N1-X80	1	1			+E11-X80	1		1	=21.Z1.1+E11/5
	2		+N1-X80	2	2			+E11-X80	2		2	=21.Z1.1+E11/5
	3		+N1-X80	3	3			+E11-X80	3		3	=21.Z1.1+E11/5
	4		+N1-X80	4	4			+E11-X80	4		4	=22.C2.1+E11/4
	5		+N1-X80	5	5			+E11-X80	5		5	=22.C2.1+E11/4
	6		+N1-X80	6	6			+E11-X80	6		6	=22.C2.1+E11/4
	7		+N1-X80	7	7			+E11-X80	7		7	=11.H11+E11/1
	8		+N1-X80	8	8			+E11-X80	8		8	=11.H11+E11/1
	9		+N1-X80	9	9			+E11-X80	9		9	=11.H11+E11/1
	10		+N1-X80	10	10			+E11-X80	10		10	=61.L3+E11/1
	11		+N1-X80	11	11			+E11-X80	11		11	=61.L3+E11/1
	12		+N1-X80	12	12			+E11-X80	12		12	=61.L3+E11/1
					13							
					14							
					15							
					16							
	GNYE		+N1-X80	PE1	PE1			+E11-X80	PE1		GNYE	=01.A1+E11/31
					PE2							

Created with a trial version of Synchron PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +S1-X80	24	= XS1	function page
			design.	PED						+ S1	77/130
			check.					09 33 016 2648	98290	2953	page
change	date	name	norm		originally.	created for.	created by.	09330162748	WS450 KL x 5500 CNC Monolith		366

connector diagram

function text							=01.A1-W31L	cable name	terminal connection diagram +S1-X81 energy headstock							cable name	=01.A1+W1-W31L								page/ path
							JZ-HF 50x1	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	JZ-HF 50x1								
							1		+N1-X81	A01	A01			+E13-X81	A01		1								=01.A2+E11/3
							2		+N1-X81	A02	A02			+E13-X81	A02		2								=01.A2+E11/3
							3		+N1-X81	A03	A03			+E13-X81	A03		3								=01.A2+E11/3
							4		+N1-X81	A04	A04			+E13-X81	A04		4								=01.A2+E11/3
							5		+N1-X81	A05	A05			+E13-X81	A05		5								=01.A2+E11/5
							6		+N1-X81	A06	A06			+E13-X81	A06		6								=01.A2+E11/5
							7		+N1-X81	A07	A07			+E13-X81	A07		7								=01.A2+E11/5
							8		+N1-X81	A08	A08			+E13-X81	A08		8								=01.A2+E11/5
							9		+N1-X81	A09	A09			+E13-X81	A09		9								=01.A2+E11/6
							10		+N1-X81	A10	A10			+E13-X81	A10		10								=01.A2+E11/6
							11		+N1-X81	A11	A11			+E13-X81	A11		11								=01.A2+E11/6
							12		+N1-X81	A12	A12			+E13-X81	A12		12								=01.A2+E11/6
							13		+N1-X81	A13	A13			+E13-X81	A13		13								=01.A2+E11/8
							14		+N1-X81	A14	A14			+E13-X81	A14		14								=01.A2+E11/8
							15		+N1-X81	A15	A15			+E13-X81	A15		15								=01.A2+E11/8
							16		+N1-X81	A16	A16			+E13-X81	A16		16								=01.A2+E11/8
							17		+N1-X81	B01	B01			+E13-X81	B01		17								=01.A3+E11/1
							18		+N1-X81	B02	B02			+E13-X81	B02		18								=01.A3+E11/1
							19		+N1-X81	B03	B03			+E13-X81	B03		19								=01.A3+E11/1
							20		+N1-X81	B04	B04			+E13-X81	B04		20								=01.A3+E11/1
							21		+N1-X81	B05	B05			+E13-X81	B05		21								=01.A3+E11/12
							22		+N1-X81	B06	B06			+E13-X81	B06		22								=01.A3+E11/12
							23		+N1-X81	B07	B07			+E13-X81	B07		23								=01.A3+E11/12
							24		+N1-X81	B08	B08			+E13-X81	B08		24								=01.A3+E11/12
							25		+N1-X81	B09	B09			+E13-X81	B09		25								=01.A3+E11/12
							26		+N1-X81	B10	B10			+E13-X81	B10		26								=01.A3+E11/14
							27		+N1-X81	B11	B11			+E13-X81	B11		27								=01.A3+E11/14
							28		+N1-X81	B12	B12			+E13-X81	B12		28								=01.A3+E11/14
							29		+N1-X81	B13	B13			+E13-X81	B13		29								=01.A3+E11/14
							30		+N1-X81	B14	B14			+E13-X81	B14		30								=01.A3+E11/14
							31		+N1-X81	B15	B15			+E13-X81	B15		31								=01.A3+E11/14
							32		+N1-X81	B16	B16			+E13-X81	B16		32								=01.A3+E11/15
							33		+N1-X81	C01	C01			+E13-X81	C01		33								=01.A3+E11/15
							34		+N1-X81	C02	C02			+E13-X81	C02		34								=01.A3+E11/15
							35		+N1-X81	C03	C03			+E13-X81	C03		35								=01.A3+E11/16

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +S1-X81	25	= XS1	function page
			design.	PED						+ S1	78/130
			check.					09 21 064 3001	98290	2953	page
change	date	name	norm		originally.	created for.	created by.	Han-D64F-C	WS450 KL x 5500 CNC Monolith		367

connector diagram

function text							=01.A1-W31L	cable name	terminal connection diagram +S1-X81 energy headstock							cable name	=01.A1+W1-W31L								page/ path
							JZ-HF 50x1	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	JZ-HF 50x1								
							36		+N1-X81	C04	C04			+E13-X81	C04		36								=01.A3+E11/16
											C05														
											C06														
											C07														
											C08														
											C09														
											C10														
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											D10														
											D11														
											D12														
											D13														
											D14														
											D15														
											D16														
							GNYE		+N1-X81	PE1	PE1			+E13-X81	PE1		GNYE								=01.A1+E11/31
											PE2														

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +S1-X81	26	= XS1	function page 79/130
			design.	PED						+ S1	
			check.					09 21 064 3001	98290	2953	page 368
change	date	name	norm		originally.	created for.	created by.	Han-D64F-C	WS450 KL x 5500 CNC Monolith		

connector diagram

function text							=01.A1-W31P	cable name	terminal connection diagram +S1-X85 energy tailstock							cable name	=01.A1+W1-W31P								page/ path
							JZ-HF 18x1,5	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	JZ-HF 18x1,5								
							1		+T2-X85	1	1			+E11-X85	1		1								=25.Z5.1+E11/4
							2		+T2-X85	2	2			+E11-X85	2		2								=25.Z5.1+E11/4
							3		+T2-X85	3	3			+E11-X85	3		3								=25.Z5.1+E11/4
											4														
											5														
											6														
											7														
											8														
											9														
											10														
											11														
											12														
											13														
											14														
											15														
											16														
							GNYE		+T2-X85	PE1	PE1			+E11-X85	PE1		GNYE								=01.A1+E11/31
											PE2														

Created with a trial version of Syncfusion PDF library.

connector diagram

function text							=01.A1-W31R	cable name	terminal connection diagram +S1-X86 control tailstock							cable name	=01.A1+W1-W31R								page/ path
							JZ-HF 34x1	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	JZ-HF 34x1								
							1		+T2-X86	1	1			+E13-X86	1		1								=01.A2+E11/3
							2		+T2-X86	2	2			+E13-X86	2		2								=01.A2+E11/3
							3		+T2-X86	3	3			+E13-X86	3		3								=01.A2+E11/3
							4		+T2-X86	4	4			+E13-X86	4		4								=01.A2+E11/3
							5		+T2-X86	5	5			+E13-X86	5		5								=01.A2+E11/5
							6		+T2-X86	6	6			+E13-X86	6		6								=01.A2+E11/5
							7		+T2-X86	7	7			+E13-X86	7		7								=01.A2+E11/5
							8		+T2-X86	8	8			+E13-X86	8		8								=01.A2+E11/5
							9		+T2-X86	9	9			+E13-X86	9		9								=01.A2+E11/6
							10		+T2-X86	10	10			+E13-X86	10		10								=01.A2+E11/6
							11		+T2-X86	11	11			+E13-X86	11		11								=01.A2+E11/6
							12		+T2-X86	12	12			+E13-X86	12		12								=01.A2+E11/6
							13		+T2-X86	13	13			+E13-X86	13		13								=01.A2+E11/8
							14		+T2-X86	14	14			+E13-X86	14		14								=01.A2+E11/8
							15		+T2-X86	15	15			+E13-X86	15		15								=01.A2+E11/8
							16		+T2-X86	16	16			+E13-X86	16		16								=01.A2+E11/8
							17		+T2-X86	17	17			+E13-X86	17		17								=01.A3+E11/1
							18		+T2-X86	18	18			+E13-X86	18		18								=01.A3+E11/1
							19		+T2-X86	19	19			+E13-X86	19		19								=01.A3+E11/1
							20		+T2-X86	20	20			+E13-X86	20		20								=01.A3+E11/1
							21		+T2-X86	21	21			+E13-X86	21		21								=01.A3+E11/10
							22		+T2-X86	22	22			+E13-X86	22		22								=01.A3+E11/10
											23														
											24														
											25														
											26														
											27														
											28														
											29														
											30														
											31														
											32														
							GNYE		+T2-X86	PE1	PE1			+E13-X86	PE1		GNYE								=01.A1+E11/31
											PE2														

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +S1-X86	28	= XS1	function page
			design.	PED					+ S1	81/130
			check.				09320323101	98290	2953	page
change	date	name	norm		originally.	created for.	created by.	09320323001	WS450 KL x 5500 CNC Monolith	370

connector diagram

terminal connection diagram

+T1-X15

fan headstock motor

function text	cable name	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable name	=22.C2.1-W4D	cable type	page/ path
												ÖZ-J 4x1.5mm²	
			=22.C2.1-M4D	V1	1			+N1-X1	8:b		2		=22.C2.1+E11/4
			=22.C2.1-M4D	W1	2			+N1-X1	10:b		3		=22.C2.1+E11/4
					6								
					4								
			=22.C2.1-M4D	U1	5			+N1-X1	6:b		1		=22.C2.1+E11/4
			=22.C2.1-M4D	PE	PE			+N1-X1	PE2		GNYE		=22.C2.1+E11/4
					GEH								

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +T1-X15	1	= XS1 + T1	function page 82/130
			design.	PED				BSTA107FR54580236400	98290 WS450 KL x 5500 CNC Monolith	2953	page 371
			check.								
change	date	name	norm		originally.	created for.	created by.				

connector diagram

terminal connection diagram

+T1-X23

position encoder headstock

function text	cable name	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	cable name	=22.C2.1+S1-W2M	=22.C2.1+W1-W2M	page/ path
												TOPGEBER 5109x	TOPGEBER 5109x	
			=22.C2.1-B2Q	cos-	1			+S1-X23	1			BK		=22.C2.1+E11/2
			=22.C2.1-B2Q	RS485+	2			+S1-X23	2			OG		=22.C2.1+E11/2
			=22.C2.1-R2N	TM+	3			+S1-X23	3			GNBK		=22.C2.1+E11/2
					4									
			=22.C2.1-B2Q	sin+	5			+S1-X23	5			GN		=22.C2.1+E11/2
			=22.C2.1-B2Q	sin-	6			+S1-X23	6			YE		=22.C2.1+E11/2
			=22.C2.1-B2Q	RS485-	7			+S1-X23	7			RD		=22.C2.1+E11/2
			=22.C2.1-B2Q	cos+	8			+S1-X23	8			BN		=22.C2.1+E11/2
					9			+S1-X23	9				SH3	=22.C2.1+E11/2
			=22.C2.1-B2Q	GND	10			+S1-X23	10			BNBU		=22.C2.1+E11/2
			=22.C2.1-R2N	TM-	11			+S1-X23	11			GNRD		=22.C2.1+E11/2
			=22.C2.1-B2Q	+8V	12			+S1-X23	12			BNRD		=22.C2.1+E11/2
					GEH			+S1-X23	GEH				SH	=22.C2.1+E11/2

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +T1-X23	2	= XS1 + T1	function page 83/130
			design.	PED			623 Stecker	98290 WS450 KL x 5500 CNC Monolith	2953	page 372
			check.							
change	date	name	norm		originally. / created for.	created by.				

connector diagram

terminal connection diagram

+T1-X82

grease lubrication

function text	cable name	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	cable name	page/ path
					L1							
					L2							
					L3							
					PE							

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +T1-X82	3	= XS1 + T1	function page 84/130
			design.	PED							
			check.					153A	98290	2953	page
change	date	name	norm		originally.	created for.	created by.	1725	WS450 KL x 5500 CNC Monolith		373

connector diagram

function text							=01.A1-W31N	cable name	terminal connection diagram +T1-X89 control panel headstock							cable name	=01.A1+N1-W31N								page/ path
							JZ-HF 34x1	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	JZ-HF 34x1								
							1		=01.A3+P3-S1P	11	1			+N1-X81	B01		1								=01.A3+E11/1
							3		=01.A3+P3-S1P	12	2			+N1-X81	B02		2								=01.A3+E11/1
							2		=01.A3+P3-S1P	21	3			+N1-X81	B03		3								=01.A3+E11/1
							4		=01.A3+P3-S1P	22	4			+N1-X81	B04		4								=01.A3+E11/1
							5		=01.A3+P3-S1P	33	5			=71.M1+N1-X350.89	2		5								=81.P3+T1/1
							6		=01.A3+P3-S1P	34	6			=71.M1+N1-X350.89	1		6								=81.P3+T1/1
							7		=81.P3+P3-S1E	12	7			=71.M1+N1-X350.89	5		7								=81.P3+T1/1
							8		=81.P3+P3-S1H	14	8			=71.M1+N1-X350.89	4		8								=81.P3+T1/1
							9		=81.P3+P3-S1K	14	9			=71.M1+N1-X350.89	8		9								=81.P3+T1/1
							10		=81.P3+P3-S1P	14	10			=71.M1+N1-X350.90	1		10								=81.P3+T1/1
							11		=81.P3+P3-S1R	14	11			=71.M1+N1-X350.90	5		11								=81.P3+T1/1
							12		=81.P3+P3-S2B	14	12			=71.M1+N1-X350.91	1		12								=81.P3+T1/2
							13		=81.P3+P3-S2E	14	13			=71.M1+N1-X350.91	5		13								=81.P3+T1/2
							14		=81.P3+P3-P10C	X1	14			=71.M1+N1-X350.218	1		14								=81.P3+T1/10
							15		=81.P3+P3-P10C	X2	15			=71.M1+N1-X350.218	2		15								=81.P3+T1/10
							16		=01.A3+P3-S12P	13	16			+N1-X2	3:a		16								=01.A3+E11/12
							17		=01.A3+P3-S12P	14	17			+N1-X2	4:b		17								=01.A3+E11/12
							18		=01.A3+P3-S12P	X2	18			+N1-X2	C4ML:a		18								=01.A3+E11/12
							19		=81.P3+P3-P10F	X1	19			=71.M1+N1-X350.218	5		19								=81.P3+T1/10
							20		=81.P3+P3-P10F	X2	20			=71.M1+N1-X350.218	6		20								=81.P3+T1/10
											21														
											22														
											23														
											24														
											25														
											26														
											27														
											28														
											29														
											30														
											31														
											32														
							GNYE		=01.A1+P3-PE		PE1			+N1-X1	PE1		GNYE								=01.A1+E11/31
											PE2														

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connector diagram

function text						=25.Z5.1+W1-W2D	=25.Z5.1+S1-W2D	cable name	terminal connection diagram +T2-X10 Motor z-axis tailstock adjustment							cable name									page/ path
						TOPSERV 113 PUR 6x1,5	TOPSERV 113 PUR 6x1,5	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type									
							U		+S1-X31	1	1			=25.Z5.1-M2D	U										=25.Z5.1+E11/2
							V		+S1-X31	3	3			=25.Z5.1-M2D	V										=25.Z5.1+E11/2
							W		+S1-X31	4	4			=25.Z5.1-M2D	W										=25.Z5.1+E11/2
							1		+S1-X31	A	A			=25.Z5.1-M2D	x1										=25.Z5.1+E11/2
							2		+S1-X31	B	B			=25.Z5.1-M2D	x2										=25.Z5.1+E11/2
											C														
											D														
							GNYE		+S1-X31	PE	PE			=25.Z5.1-M2D	PE										=25.Z5.1+E11/2
						SH			+S1-X31	GEH	GEH														=25.Z5.1+E11/2

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +T2-X10	1	= XS1
			design.	PED						+ T2
			check.					BSTA078FR05580235400	98290 WS450 KL x 5500 CNC Monolith	2953
change	date	name	norm		originally.	created for.	created by.			

function page 86/130

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connector diagram

function text							=25.Z5.1+S1-W2L	cable name	terminal connection diagram +T2-X11 Position encoder Z-axis tailstock adjustment							cable name									page/ path
							TOPGEBER 512 9x	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type									
							BK		+S1-X59	1	1			=25.Z5.1-B2P	cos-										=25.Z5.1+E11/2
							OG		+S1-X59	2	2			=25.Z5.1-B2P	RS485+										=25.Z5.1+E11/2
							GNBK		+S1-X59	3	3			=25.Z5.1-R2N	TM+										=25.Z5.1+E11/2
											4														
							GN		+S1-X59	5	5			=25.Z5.1-B2P	sin+										=25.Z5.1+E11/2
							YE		+S1-X59	6	6			=25.Z5.1-B2P	sin-										=25.Z5.1+E11/2
							RD		+S1-X59	7	7			=25.Z5.1-B2P	RS485-										=25.Z5.1+E11/2
							BN		+S1-X59	8	8			=25.Z5.1-B2P	cos+										=25.Z5.1+E11/2
							SH2		=25.Z5.1+L1-WL3	SH3	9														=25.Z5.1+E11/2
							BNBU		+S1-X59	10	10			=25.Z5.1-B2P	GND										=25.Z5.1+E11/2
							GNRD		+S1-X59	11	11			=25.Z5.1-R2N	TM-										=25.Z5.1+E11/2
							BNRD		+S1-X59	12	12			=25.Z5.1-B2P	+8V										=25.Z5.1+E11/2
							SH		+S1-X59	GEH	GEH														=25.Z5.1+E11/2

Created with a trial version of Synchfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +T2-X11	2	= XS1 + T2	function page 87/130
			design.	PED				623 Stecker	98290 WS450 KL x 5500 CNC Monolith	2953	page 376
			check.								
change	date	name	norm		originally.	created for.	created by.				

connector diagram

function text							=01.A1+S1-W31P	cable name	terminal connection diagram +T2-X85 energy tailstock							cable name	=25.Z5.1-W3D	=01.A1+S1-W31P							page/ path
							JZ-HF 18x1,5	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	ÖZ-J 4x1.5mm²	JZ-HF 18x1,5							
							1		+S1-X85	1	1			=25.Z5.1-M4D	U1		1								=25.Z5.1+E11/4
							2		+S1-X85	2	2			=25.Z5.1-M4D	V1		2								=25.Z5.1+E11/4
							3		+S1-X85	3	3			=25.Z5.1-M4D	W1		3								=25.Z5.1+E11/4
											4														
											5														
											6														
											7														
											8														
											9														
											10														
											11														
											12														
											13														
											14														
											15														
											16														
											PE1			+S1-X85	PE1			GNYE							=01.A1+E11/31
											PE2														

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +T2-X85	3	= XS1	function page 88/130
			design.	PED						+ T2	
			check.					09 33 016 2648	98290	2953	page 377
change	date	name	norm		originally.	created for.	created by.	09330162748	WS450 KL x 5500 CNC Monolith		

connector diagram

function text							=01.A3-W10R	cable name	terminal connection diagram +T2-X86 control tailstock							cable name	=01.A1+S1-W31R								page/ path
							JZ-HF 7x0,5	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	JZ-HF 34x1								
									-X1	C3L+1:a	1			+S1-X86	1		1								=01.A2+E11/3
									-X1	C3ML1:a	2			+S1-X86	2		2								=01.A2+E11/3
									-X1	C3L+1:b	3			+S1-X86	3		3								=01.A2+E11/3
									-X1	C3ML1:b	4			+S1-X86	4		4								=01.A2+E11/3
									-X1	C5L+1:a	5			+S1-X86	5		5								=01.A2+E11/5
									-X1	C5ML1:a	6			+S1-X86	6		6								=01.A2+E11/5
									-X1	C5L+1:b	7			+S1-X86	7		7								=01.A2+E11/5
									-X1	C5ML1:b	8			+S1-X86	8		8								=01.A2+E11/5
									-X1	C6L+:a	9			+S1-X86	9		9								=01.A2+E11/6
									-X1	C6ML:a	10			+S1-X86	10		10								=01.A2+E11/6
									-X1	C6L+:b	11			+S1-X86	11		11								=01.A2+E11/6
									-X1	C6ML:b	12			+S1-X86	12		12								=01.A2+E11/6
									-X1	C8L+1:a	13			+S1-X86	13		13								=01.A2+E11/8
									-X1	C8ML1:a	14			+S1-X86	14		14								=01.A2+E11/8
									-X1	C8L+1:b	15			+S1-X86	15		15								=01.A2+E11/8
									-X1	C8ML1:b	16			+S1-X86	16		16								=01.A2+E11/8
									-X1	6:a	17			+S1-X86	17		17								=01.A3+E11/1
									-X1	7:a	18			+S1-X86	18		18								=01.A3+E11/1
									-X1	8:a	19			+S1-X86	19		19								=01.A3+E11/1
									-X1	9:a	20			+S1-X86	20		20								=01.A3+E11/1
							4		=25.Z5.1-A10F-B10G	21	21			+S1-X86	21		21								=01.A3+E11/10
									-X1	2:a	22			+S1-X86	22		22								=01.A3+E11/10
											23														
											24														
											25														
											26														
											27														
											28														
											29														
											30														
											31														
											32														
									-X1	PE1:b	PE1			+S1-X86	PE1		GNYE								=01.A1+E11/31
											PE2														

Created with a trial version of Syncfusion PDF library.

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +T2-X86	4	= XS1	function page 89/130
			design.	PED					+ T2	
			check.				09320323101	98290	2953	page 378
change	date	name	norm		originally.	created for.	created by.	09320323001	WS450 KL x 5500 CNC Monolith	

connector diagram

function text							=47.Y27.1+N1-W10A	cable name	terminal connection diagram +T3-X81 softloader tailstock-side							cable name									page/ path
							JZ-HF 18x0,5	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type									
							1		+N1-X81.1	1	1			=47.Y27.1-B10C	4										=47.Y27.1+T3/10
							2		+N1-X81.1	2	2			=47.Y27.1-B10C	1										=47.Y27.1+T3/10
							3		+N1-X81.1	3	3			=47.Y27.1-B10C	3										=47.Y27.1+T3/10
							4		+N1-X81.1	4	4			=47.Y27.1-B10F	4										=47.Y27.1+T3/10
							5		+N1-X81.1	5	5			=47.Y27.1-B10F	1										=47.Y27.1+T3/10
							6		+N1-X81.1	6	6			=47.Y27.1-B10F	3										=47.Y27.1+T3/10
							7		+N1-X81.1	7	7			-X81	8										=47.Y27.1+T3/10
							8		+N1-X81.1	8	8			-X81	7										=47.Y27.1+T3/10
											9														
											10														
											11														
											12														
											13														
											14														
											15														
											16														
											PE1														
											PE2														

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +T3-X81	1	= XS1	function page 90/130
			design.	PED						+ T3	
			check.					09 33 016 2648	98290	2953	page 379
change	date	name	norm		originally.	created for.	created by.	09330162748	WS450 KL x 5500 CNC Monolith		

connector diagram

function text							=47.Y27.1+N1-W1K	cable name	terminal connection diagram +T3-X83 roll journal temperature + T4							cable name	=47.Y27.1-W1K								page/ path
							TRONIC-CY (LiY-CY) 4x0,5	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	TRONIC-CY (LiY-CY) 4x0,5								
							GN		+N1-X83	1	1			=47.Y27.1-B1K	GN		GN								=47.Y27.1+T3/10
							BN		+N1-X83	2	2			=47.Y27.1-B1K	BN		BN								=47.Y27.1+T3/10
							YE		+N1-X83	3	3			=47.Y27.1-B1K	YE		YE								=47.Y27.1+T3/10
											PE						SH								=47.Y27.1+T3/10

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +T3-X83	2	= XS1	function page 91/130
			design.	PED						+ T3	
			check.					Han 3A-gg-M20	98290	2953	page 380
change	date	name	norm		originally.	created for.	created by.	09200032611	WS450 KL x 5500 CNC Monolith		

connector diagram

function text							=47.Y28.1+N1-W10A	cable name	terminal connection diagram +T4-X81 softloader headstock-side down							cable name									page/ path
							JZ-HF 18x0,5	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type									
							2		+N1-X81.2	2	2			=47.Y28.1-B10C	1										=47.Y28.1+T4/10
							3		+N1-X81.2	3	3			=47.Y28.1-B10C	3										=47.Y28.1+T4/10
							1		+N1-X81.2	1	1			=47.Y28.1-B10C	4										=47.Y28.1+T4/10
							4		+N1-X81.2	4	4			=47.Y28.1-B10F	4										=47.Y28.1+T4/10
							5		+N1-X81.2	5	5			=47.Y28.1-B10F	1										=47.Y28.1+T4/10
							6		+N1-X81.2	6	6			=47.Y28.1-B10F	3										=47.Y28.1+T4/10
									+N1-X81.2	7	7			-X81	8										=47.Y28.1+T4/10
									+N1-X81.2	8	8			-X81	7										=47.Y28.1+T4/10

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +T4-X81	1	= XS1	function page
			design.	PED						+ T4	92/130
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				381

connector diagram

function text							=47.Y28.1+N1-W1F	cable name	terminal connection diagram +T4-X84 roll journal temperature + T4							cable name	=47.Y28.1-W1F								page/ path
							TRONIC-CY (LiY-CY) 4x0,5	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	TRONIC-CY (LiY-CY) 4x0,5								
							GN		+N1-X84	1	1			=47.Y28.1-B1F	GN		GN								=47.Y28.1+T4/10
							BN		+N1-X84	2	2			=47.Y28.1-B1F	BN		BN								=47.Y28.1+T4/10
							YE		+N1-X84	3	3			=47.Y28.1-B1F	YE		YE								=47.Y28.1+T4/10
											PE														=47.Y28.1+T4/10

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +T4-X84	2	= XS1	function page 93/130
			design.	PED						+ T4	
			check.					Han 3A-gg-M20	98290	2953	page 382
change	date	name	norm		originally.	created for.	created by.	09200032611	WS450 KL x 5500 CNC Monolith		

connector diagram

terminal connection diagram

+U1-X9

motor z-axis headstockside

function text	cable name	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	cable name	cable type	page/ path
											=21.Z1.1+L1-W2D	TOPSERV® 109x1,5	
											=21.Z1.1+S1-W2D	TOPSERV® 109x1,5	
			=21.Z1.1-M2D	U	1			+L1-X9	1		1		=21.Z1.1+E11/2
			=21.Z1.1-M2D	V	3			+L1-X9	3		2		=21.Z1.1+E11/2
			=21.Z1.1-M2D	W	4			+L1-X9	4		3		=21.Z1.1+E11/2
					A								
					B								
					C								
					D								
			=21.Z1.1-M2D	PE	PE			+L1-X9	PE		GNYE		=21.Z1.1+E11/2
					GEH			+L1-X9	GEH			SH	=21.Z1.1+E11/2

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +U1-X9	1	= XS1 + U1	function page 94/130
			design.	PED			BSTA078FR05580235400	98290 WS450 KL x 5500 CNC Monolith	2953	page 383
			check.							
change	date	name	norm		originally.	created for.	created by.			

connector diagram

terminal connection diagram

+U1-X10

motor z-axis tailstockside

function text	cable name	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	cable name	page/ path
											=21.Z1.1+L1-W3D	
											TOPSERV® 10x1,5	
			=21.Z1.1-M3D	U	1			+L1-X10	1		1	=21.Z1.1+E11/3
			=21.Z1.1-M3D	V	3			+L1-X10	3		2	=21.Z1.1+E11/3
			=21.Z1.1-M3D	W	4			+L1-X10	4		3	=21.Z1.1+E11/3
					A							
					B							
					C							
					D							
			=21.Z1.1-M3D	PE	PE			+L1-X10	PE		GNYE	=21.Z1.1+E11/3
					GEH			+L1-X10	GEH		SH	=21.Z1.1+E11/3

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +U1-X10	2	= XS1
			design.	PED					+ U1
			check.				BSTA078FR05580235400	98290 WS450 KL x 5500 CNC Monolith	2953
change	date	name	norm		originally. / created for.	created by.			

function page 95/130

page 384

connector diagram

terminal connection diagram

+U1-X11

motor X-axis

function text	cable name	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable name	cable type	=21.X1.1+L1-W2C TOPSERV® 109x1,5	=21.X1.1+W1-W2C TOPSERV® 109x1,5	page/ path
			=21.X1.1-M2D	U	1			+L1-X11	1			1		=21.X1.1+E11/2
			=21.X1.1-M2D	V	3			+L1-X11	3			2		=21.X1.1+E11/2
			=21.X1.1-M2D	W	4			+L1-X11	4			3		=21.X1.1+E11/2
					A									
					B									
					C									
					D									
			=21.X1.1-M2D	PE	PE			+L1-X11	PE			GNYE		=21.X1.1+E11/2
					GEH			=21.X1.1+E12-X1G	sh				SH	=21.X1.1+E11/2

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +U1-X11	3	= XS1
			design.	PED					+ U1
			check.				BSTA078FR05580235400	98290 WS450 KL x 5500 CNC Monolith	2953
change	date	name	norm		originally. / created for.	created by.			

function page 96/130

page 385

connector diagram

terminal connection diagram

+U1-X55

Position encoder Z-axis headstock side

function text	cable name	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	cable name	cable type	=21.Z1.1+L1-W2L TOPGEBER 5129x	=21.Z1.1+S1-W2L TOPGEBER 5129x	page/ path
			=21.Z1.1-B2P	cos-	1			+L1-X55	1				BK		=21.Z1.1+E11/2
			=21.Z1.1-B2P	RS485+	2			+L1-X55	2				OG		=21.Z1.1+E11/2
			=21.Z1.1-R2N	TM+	3			+L1-X55	3				GNBK		=21.Z1.1+E11/2
					4										
			=21.Z1.1-B2P	sin+	5			+L1-X55	5				GN		=21.Z1.1+E11/2
			=21.Z1.1-B2P	sin-	6			+L1-X55	6				YE		=21.Z1.1+E11/2
			=21.Z1.1-B2P	RS485-	7			+L1-X55	7				RD		=21.Z1.1+E11/2
			=21.Z1.1-B2P	cos+	8			+L1-X55	8				BN		=21.Z1.1+E11/2
					9				SH3				SH3		=21.Z1.1+E11/2
			=21.Z1.1-B2P	GND	10			+L1-X55	10				BNBU		=21.Z1.1+E11/2
			=21.Z1.1-R2N	TM-	11			+L1-X55	11				GNRD		=21.Z1.1+E11/2
			=21.Z1.1-B2P	+8V	12			+L1-X55	12				BNRD		=21.Z1.1+E11/2
					GEH			+L1-X55	GEH					SH	=21.Z1.1+E11/2

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +U1-X55	4	= XS1
			design.	PED					+ U1
			check.				623 Stecker	98290 WS450 KL x 5500 CNC Monolith	2953
change	date	name	norm		originally. created for.	created by.			

function page 97/130

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connector diagram

terminal connection diagram

+U1-X56

Position encoder Z-axis tailstock side

function text	cable name	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	cable name	cable type	=21.Z1.1+L1-W3L	TOPGEBER 5129x	=21.Z1.1+S1-W3L	TOPGEBER 5129x	page/ path
			=21.Z1.1-B3P	cos-	1			+L1-X56	1				BK				=21.Z1.1+E11/3
			=21.Z1.1-B3P	RS485+	2			+L1-X56	2				OG				=21.Z1.1+E11/3
			=21.Z1.1-R3N	TM+	3			+L1-X56	3				GNBK				=21.Z1.1+E11/3
					4												
			=21.Z1.1-B3P	sin+	5			+L1-X56	5				GN				=21.Z1.1+E11/3
			=21.Z1.1-B3P	sin-	6			+L1-X56	6				YE				=21.Z1.1+E11/3
			=21.Z1.1-B3P	RS485-	7			+L1-X56	7				RD				=21.Z1.1+E11/3
			=21.Z1.1-B3P	cos+	8			+L1-X56	8				BN				=21.Z1.1+E11/3
					9			+L1-X56	9					SH3			=21.Z1.1+E11/3
			=21.Z1.1-B3P	GND	10			+L1-X56	10				BNBU				=21.Z1.1+E11/3
			=21.Z1.1-R3N	TM-	11			+L1-X56	11				GNRD				=21.Z1.1+E11/3
			=21.Z1.1-B3P	+8V	12			+L1-X56	12				BNRD				=21.Z1.1+E11/3
					GEH			+L1-X56	GEH				SH				=21.Z1.1+E11/3

Created with a trial version of Synchron PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +U1-X56	5	= XS1
			design.	PED					+ U1
			check.				623 Stecker	98290 WS450 KL x 5500 CNC Monolith	2953
change	date	name	norm		originally. created for.	created by.			

function page 98/130

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connector diagram

terminal connection diagram

+U1-X57

position encoder X-axis

function text	cable name	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable name	cable type	=21.X1.1+L1-W2L	TOPGEBER 5129x	page/ path
			=21.X1.1-B2P	cos-	1			+L1-X57	1			BK		=21.X1.1+E11/2
			=21.X1.1-B2P	RS485+	2			+L1-X57	2			OG		=21.X1.1+E11/2
			=21.X1.1-R2M	TM+	3			+L1-X57	3			GNBK		=21.X1.1+E11/2
					4									
			=21.X1.1-B2P	sin+	5			+L1-X57	5			GN		=21.X1.1+E11/2
			=21.X1.1-B2P	sin-	6			+L1-X57	6			YE		=21.X1.1+E11/2
			=21.X1.1-B2P	RS485-	7			+L1-X57	7			RD		=21.X1.1+E11/2
			=21.X1.1-B2P	cos+	8			+L1-X57	8			BN		=21.X1.1+E11/2
					9				SH3			SH3		=21.X1.1+E11/2
			=21.X1.1-B2P	GND	10			+L1-X57	10			BNBU		=21.X1.1+E11/2
			=21.X1.1-R2M	TM-	11			+L1-X57	11			GNRD		=21.X1.1+E11/2
			=21.X1.1-B2P	+8V	12			+L1-X57	12			BNRD		=21.X1.1+E11/2
					GEH			+S1-X57	GEH			SH		=21.X1.1+E11/2

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +U1-X57	6	= XS1
			design.	PED					+ U1
			check.				623 Stecker	98290 WS450 KL x 5500 CNC Monolith	2953
change	date	name	norm		originally. created for.	created by.			

function page 99/130

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connector diagram

terminal connection diagram

+U2-X12

plug connection power plug size 1 c-axis

function text	cable name	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable name	=21.C1.1+L1-W2D	cable type	TOPSERV® 109x1,5	page/ path
			=21.C1.1-M2D	U	1			+L1-X12	1		1			=21.C1.1+E11/2
			=21.C1.1-M2D	V	3			+L1-X12	3		2			=21.C1.1+E11/2
			=21.C1.1-M2D	W	4			+L1-X12	4		3			=21.C1.1+E11/2
					A									
					B									
					C									
					D									
			=21.C1.1-M2D	PE	PE			+L1-X12	PE		GNYE			=21.C1.1+E11/2
					GEH			+L1-X12	GEH		SH			=21.C1.1+E11/2

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +U2-X12	1	= XS1
			design.	PED					+ U2
			check.				BSTA078FR05580235400	98290 WS450 KL x 5500 CNC Monolith	2953
change	date	name	norm		originally. / created for.	created by.			

function page 100/130

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connector diagram

function text	cable name	cable type	terminal connection diagram +U2-X15 motor fan grinding wheel motor: designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable name	cable type	=21.C1.2-W7D ÖZ-J 4x1.5mm²	page/ path
			=21.C1.2-M7D	V1	1			-X1	8:a			2	=21.C1.2+E11/7
			=21.C1.2-M7D	W1	2			-X1	10:a			3	=21.C1.2+E11/7
					6								
					4								
			=21.C1.2-M7D	U1	5			-X1	6:a			1	=21.C1.2+E11/7
			=21.C1.2-M7D	PE	PE			-X1	PE2			GNYE	=21.C1.2+E11/7
					GEH								

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +U2-X15	2	= XS1
			design.	PED						+ U2
			check.					BSTA107FR54580236400	98290 WS450 KL x 5500 CNC Monolith	2953
change	date	name	norm		originally.	created for.	created by.			

function page 101/130

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connector diagram

terminal connection diagram

+U2-X22

encoder grinding wheel

function text	cable name	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable name	cable type	=21.C1.2+L1-WL2 / TOPGEBER 5109x	page/ path
			=21.C1.2-B2Q	cos-	1			+L1-X22	1			BK	=21.C1.2+E11/2
			=21.C1.2-B2Q	RS485+	2			+L1-X22	2			OG	=21.C1.2+E11/2
			=21.C1.2-R2N	TM+	3			+L1-X22	3			GNBK	=21.C1.2+E11/2
					4								
			=21.C1.2-B2Q	sin+	5			+L1-X22	5			GN	=21.C1.2+E11/2
			=21.C1.2-B2Q	sin-	6			+L1-X22	6			YE	=21.C1.2+E11/2
			=21.C1.2-B2Q	RS485-	7			+L1-X22	7			RD	=21.C1.2+E11/2
			=21.C1.2-B2Q	cos+	8			+L1-X22	8			BN	=21.C1.2+E11/2
					9			-X22	GEH			SH3	=21.C1.2+E11/2
			=21.C1.2-B2Q	GND	10			+L1-X22	10			BNBU	=21.C1.2+E11/2
			=21.C1.2-R2N	TM-	11			+L1-X22	11			GNRD	=21.C1.2+E11/2
			=21.C1.2-B2Q	+8V	12			+L1-X22	12			BNRD	=21.C1.2+E11/2
					GEH			-X22	9			SH3	=21.C1.2+E11/2

Created with a trial version of Synchudion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +U2-X22 623 Stecker	3	= XS1 + U2	function page 102/130
			design.	PED				98290 WS450 KL x 5500 CNC Monolith	2953	page 391
			check.							
change	date	name	norm		originally.	created for.	created by.			

connector diagram

terminal connection diagram

+U2-X40

energy upper saddle

function text						=21.C1.2-W8D	=01.A1-W7P	cable name	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable name	=01.A1+L1-W31B								page/ path
						ÖZ-J 4x1.5mm²	ÖZJ 3x1,5	cable type								cable type	JZ-HF 34x1,5								
							1		=01.A1-X7P	L1	1			+L1-X40	1		1								=01.A1+E11/7
							2		=01.A1-X7P	N	2			+L1-X40	2		2								=01.A1+E11/7
									-X1	5:a	3			+L1-X40	5		5								=21.C1.2+E11/7
									-X1	7:a	4			+L1-X40	6		6								=21.C1.2+E11/7
									-X1	9:a	5			+L1-X40	7		7								=21.C1.2+E11/7
						1			=21.C1.2-M8D	U1	6			+L1-X40	8		8								=21.C1.2+E11/8
						2			=21.C1.2-M8D	V1	7			+L1-X40	9		9								=21.C1.2+E11/8
						3			=21.C1.2-M8D	W1	8			+L1-X40	10		10								=21.C1.2+E11/8
											9														
											10														
											11														
											12														
											13														
											14														
											15														
											16														
									=61.L6+P9-A1L-X1	L	17			+L1-X40	17		17								=61.L6+E11/1
									=61.L6+P9-A1L-X1	N	18			+L1-X40	18		18								=61.L6+E11/1
											19														
											20														
											21														
											22														
											23														
											24														
											25														
											26														
											27														
											28														
											29														
											30														
											31														
											32														
									-X1	PE1:a	PE1			+L1-XPE	PE1		GNYE								=01.A1+E11/31
											PE2														

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +U2-X40	4	= XS1 + U2	function page 103/130
			design.	PED						
			check.				09320323001 09320323101	98290 WS450 KL x 5500 CNC Monolith	2953	page 392
change	date	name	norm		originally.	created for.	created by.			

connector diagram

function text						=01.A3-W12L	=01.A1-W31B	cable name	terminal connection diagram +U2-X45 control upper saddle							cable name	=01.A1+L1-W31D								page/ path
						ÖZ-J 10x0,5mm²	JZ-HF 14x0,5	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	JZ-HF / OZ-HF34x1								
									-X1	C3L+1	1			+L1-X1	C3L+2:a		1								=71.M1+U2/610
									-X1	C3ML1	2			+L1-X1	C3ML2:a		2								=71.M1+U2/610
									-X1	C5L+1	3			+L1-X1	C5L+2:a		3								=71.M1+U2/610
									-X1	C5ML1	4			+L1-X1	C5ML2:a		4								=71.M1+U2/610
									-X1	C6ML	5			+L1-X1	C6ML2:a		5								=71.M1+U2/610
									-X1	C6L+	6			+L1-X1	C6L+2:a		6								=71.M1+U2/610
									-X1	C8L+	7			+L1-X1	C8L+2:a		7								=71.M1+U2/610
									-X1	C8ML	8			+L1-X1	C8ML2:a		8								=71.M1+U2/610
							1		-X2	1:b	9			+L1-X45	A15		9								=01.A2+E11/7
							2		-X2	2:b	10			+L1-X45	A16		10								=01.A2+E11/7
									=01.A3+P9-S1J	11	11			+L1-X1	2:a		11								=01.A3+E11/1
									=01.A3+P9-S1J	12	12			+L1-X45	B12		12								=01.A3+E11/1
									=01.A3+P9-S1J	21	13			+L1-X1	4:a		13								=01.A3+E11/1
									=01.A3+P9-S1J	22	14			+L1-X45	B14		14								=01.A3+E11/1
									-X1	C11L+:a	15			+L1-X1	C11L+1:b		15								=01.A2+E13/11
									-X1	C11ML:a	16			+L1-X1	C11ML1:b		16								=01.A2+E13/11
									-X1	C11L+:b	17			+L1-X1	C11L+2:b		17								=01.A2+E13/11
									-X1	C11ML:b	18			+L1-X1	C11ML2:b		18								=01.A2+E13/11
						2			=21.C1.1-A10B-B10E	21	19			+L1-X1	6:a		19								=01.A3+E11/10
									=01.A3-B10J	BU	20			+L1-X1	10:a		20								=01.A3+E11/10
									-X1	1:a	21			+L1-X1	C4L+1:b		21								=01.A3+E11/11
									-X1	2:b	22			+L1-X45	C04		22								=01.A3+E11/11
									-X1	3:b	23			+L1-X45	C05		23								=01.A3+E11/11
									-X1	12:b	24			+L1-X45	C06		24								=01.A3+E11/11
									-X1	15:b	25			+L1-X1	C4ML1:b		25								=01.A3+E11/11
									-X1	17:b	26			+L1-X1	16:a		26								=01.A3+E11/11
									-X1	18:b	27			+L1-X1	C4ML2:b		27								=01.A3+E11/11
											28														
											29														
											30														
											31														
											32														
									-X1	PE1:b	PE1			+L1-XPE	PE1		GNYE								=01.A1+E11/31
											PE2														

Created with a trial version of Synchron PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +U2-X45	5	= XS1	function page	
			design.	PED					+ U2	104/130	
			check.				09320323001	98290	2953	page	
change	date	name	norm		originally.	created for.	created by.	09320323101	WS450 KL x 5500 CNC Monolith	393	

connector diagram

terminal connection diagram

+U2-X58

encoder C-axis

function text	cable name	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable name	cable type	=21.C1.1+L1-W2M	TOPGEBER 5129x	page/ path
			=21.C1.1-B2Q	cos-	1			+L1-X58	1			BK		=21.C1.1+E11/2
			=21.C1.1-B2Q	RS485+	2			+L1-X58	2			OG		=21.C1.1+E11/2
			=21.C1.1-R2N	TM+	3			+L1-X58	3			GNBK		=21.C1.1+E11/2
					4									
			=21.C1.1-B2Q	sin+	5			+L1-X58	5			GN		=21.C1.1+E11/2
			=21.C1.1-B2Q	sin-	6			+L1-X58	6			YE		=21.C1.1+E11/2
			=21.C1.1-B2Q	RS485-	7			+L1-X58	7			RD		=21.C1.1+E11/2
			=21.C1.1-B2Q	cos+	8			+L1-X58	8			BN		=21.C1.1+E11/2
					9			=21.C1.1+L1-W2M	SH3			SH3		=21.C1.1+E11/2
			=21.C1.1-B2Q	GND	10			+L1-X58	10			BNBU		=21.C1.1+E11/2
			=21.C1.1-R2N	TM-	11			+L1-X58	11			GNRD		=21.C1.1+E11/2
			=21.C1.1-B2Q	+8V	12			+L1-X58	12			BNRD		=21.C1.1+E11/2
					GEH			+L1-X58	GEH			SH		=21.C1.1+E11/2

Created with a trial version of Synchron PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +U2-X58	6	= XS1
			design.	PED					+ U2
			check.				623 Stecker	98290 WS450 KL x 5500 CNC Monolith	2953
change	date	name	norm		originally. / created for.	created by.			

function page 105/130

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connector diagram

function text	cable name	cable type	terminal connection diagram +U2-X68 handwheel: designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	cable name	=81.P11+L1-W1E1	page/ path
					1			+L1-X68	A01				=01.A3+E11/1
					2			+L1-X68	A02				=01.A3+E11/1
					3			+L1-X68	A03				=01.A3+E11/1
					4			+L1-X68	A04				=01.A3+E11/1
					5			+L1-X68	A05			RDBU	=81.P11+L1/1
					6			+L1-X68	A06			WHYE	=81.P11+L1/1
					7			+L1-X68	A07			WHGN	=81.P11+L1/1
					8			+L1-X68	A08			BNGN	=81.P11+L1/1
					9		I0.7	+L1-X68	A09			YEBN	=81.P11+L1/1
					10		I1.0	+L1-X68	A10			WHGY	=81.P11+L1/1
					11		I1.1	+L1-X68	A11			GYBN	=81.P11+L1/1
					12		I1.2	+L1-X68	A12			WHPK	=81.P11+L1/1
					13			+L1-X68	A13			GYPK	=81.P11+L1/1
					14		I1.3	+L1-X68	A14			PKBN	=81.P11+L1/1
					15		I1.4	+L1-X68	A15			WHBU	=81.P11+L1/1
					16		I1.5	+L1-X68	A16			BNBU	=81.P11+L1/1
					17		I0.1	+L1-X68	B01			BNRD	=81.P11+L1/1
					18			+L1-X68	B02			WHRD	=81.P11+L1/1
					19		Q2.1	+L1-X68	B03			YEPK	=81.P11+L1/1
					20		I0.2	+L1-X68	B04			WHBK	=81.P11+L1/1
					21		Q2.5	+L1-X68	B05			GNBU	=81.P11+L1/1
					22		I0.3	+L1-X68	B06			BNBK	=81.P11+L1/1
					23		Q2.4	+L1-X68	B07			YEBU	=81.P11+L1/1
					24		I0.4	+L1-X68	B08			GYGN	=81.P11+L1/1
					25		Q2.3	+L1-X68	B09			GNRD	=81.P11+L1/1
					26		I0.5	+L1-X68	B10			YEGY	=81.P11+L1/1
					27		Q2.2	+L1-X68	B11			YERD	=81.P11+L1/1
					28		I0.6	+L1-X68	B12			PKGN	=81.P11+L1/1
					29			+L1-X68	B13			GNBK	=81.P11+L1/1
					30		I8.1	+L1-X68	B14			GN	=81.P11+L1/1
					31			+L1-X68	B15			YE	=81.P11+L1/1
					32			+L1-X68	B16			GY	=81.P11+L1/1
					33			+L1-X68	C01			PK	=81.P11+L1/1
					34			+L1-X68	C02			BN	=81.P11+L1/1
					35			+L1-X68	C03			WH	=81.P11+L1/1

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +U2-X68	7	= XS1
			design.	PED					+ U2
			check.				D-SUB .37p F	98290	2953
change	date	name	norm		originally. created for.	created by.	19 20 016 0251	WS450 KL x 5500 CNC Monolith	

function page 106/130

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connector diagram

function text	cable name	cable type	terminal connection diagram +U2-X68 handwheel: designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	cable name	=81.P11+L1-W1E1	page/ path
					36			+L1-X68	C04		YEBK		=81.P11+L1/1
					37			+L1-X68	D16				=81.P11+L1/1
					Geh								

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +U2-X68	8	= XS1	function page 107/130
			design.	PED						+ U2	
			check.					D-SUB .37p F	98290	2953	page 396
change	date	name	norm		originally.	created for.	created by.	19 20 016 0251	WS450 KL x 5500 CNC Monolith		

connector diagram

function text	cable name	cable type	terminal connection diagram +X1-X1 coolant pump: designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	page/ path
	=61.L1-W1C	JZ-500 HMH / OZ-500 HMH 4x2,5									
		1	=61.L1-M1D	U1	L1			-X90	1		=61.L1+E11/1
		2	=61.L1-M1D	V1	L2			-X90	2		=61.L1+E11/1
		3	=61.L1-M1D	W1	L3			-X90	3		=61.L1+E11/1
		GNYE	=61.L1-M1D	PE	PE			-X0	PE:b		=61.L1+E11/1

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +X1-X1	1	= XS1
			design.	PED						+ X1
			check.					153A	98290	2953
change	date	name	norm		originally.	created for.	created by.	1725	WS450 KL x 5500 CNC Monolith	

function page 108/130

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connector diagram

function text							=01.A1+W1-W32U	cable name	terminal connection diagram +X1-X90 energy water supply							cable name	=01.A1+W1-W32U								page/ path
							JZ-HF 18x1,5	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	JZ-HF 18x1,5								
									-X1	L1	1			+E11-X90	1		1								=61.L1+E11/1
									-X1	L2	2			+E11-X90	2		2								=61.L1+E11/1
									-X1	L3	3			+E11-X90	3		3								=61.L1+E11/1
									-X0	1:a	4			+E11-X90	4		4								=61.L1+E11/2
									-X0	2:a	5			+E11-X90	5		5								=61.L1+E11/2
									-X0	3:a	6			+E11-X90	6		6								=61.L1+E11/2
									-X0	4:a	7			+E11-X90	7		7								=61.L1+E11/2
									-X0	5:a	8			+E11-X90	8		8								=61.L1+E11/2
									-X0	6:a	9			+E11-X90	9		9								=61.L1+E11/2
							10		+E11-X90	10	10			-X0	11:a											=61.L14+E11/1
							11		+E11-X90	11	11			-X0	12:a											=61.L14+E11/1
											12															
											13															
											14															
											15															
											16															
									-X0	PE:a	PE1			+E11-X90	PE1		GNYE								=01.A1+E11/31
											PE2															

Created with a trial version of Synchron PDF library.

108 110

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +X1-X90	2	= XS1 + X1	function page 109/130
			design.	PED				09 33 016 2648	98290 WS450 KL x 5500 CNC Monolith	2953	page 398
			check.					09330162748			
change	date	name	norm		originally.	created for.	created by.				

connector diagram

function text						=01.A1+W1-W32W	=61.L1-W3D	cable name	terminal connection diagram +X1-X91 control water supply							cable name	=01.A1+W1-W32W								page/ path
						JZ-HF 25x1	JZ-603 7x1,5mm²	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	JZ-HF 25x1								
							1		-A2B-X2	L+:a	1			+E13-X91	1		1								=61.L1+E11/3
							2		-A2B-X2	ML:b	2			+E13-X91	2		2								=61.L1+E11/3
							3		-A2B-X2	4:b	3			+E13-X91	3		3								=61.L1+E11/3
							4		-A2B-X2	5:b	4			+E13-X91	4		4								=61.L1+E11/3
							5		-A2B-X2	6:b	5			+E13-X91	5		5								=61.L1+E11/3
							6		-A2B-X2	7:b	6			+E13-X91	6		6								=61.L1+E11/3
									-X0	7:b	7			+E13-X91	7		7								=61.L1+E11/10
									-X0	C5L+:b	8			+E13-X91	8		8								=61.L1+E11/10
									-X0	8:b	9			+E13-X91	9		9								=61.L1+E11/10
						10			+E13-X91	10	10			-X0	C5ML:b											=61.L1+E11/10
						11			+E13-X91	11	11			-X0	10:b											=61.L1+E11/10
											12															
											13															
											14															
											15															
											16															
											17															
											18															
											19															
											20															
											21															
											22															
											23															
											24															
									-X0	PE:a	PE1			+E13-X91	PE1		GNYE								=01.A1+E11/31
											PE2															

Created with a trial version of Synchron PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +X1-X91	3	= XS1	function page
			design.	PED						+ X1	110/130
			check.					09 33 024 2648	98290	2953	page
change	date	name	norm		originally.	created for.	created by.	09 33 024 2748	WS450 KL x 5500 CNC Monolith		399

connector diagram

function text					=61.L3-W1C	=11.H11-W1C	=21.Z1.1+.1-WC1	cable name	terminal connection diagram +X3-X80 energy hydraulic designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable name	=01.A1+N1-W31J								page/ path
					ÖZ-J 4x1.5mm²	ÖZ-J 4x1.5mm²	ÖZJ 4x1,5mm²	cable type								cable type	JZ-HF 18x1,5								
							1		=21.Z1.1-M5D	U1	1			+N1-X80	1		1								=21.Z1.1+E11/5
							2		=21.Z1.1-M5D	V1	2			+N1-X80	2		2								=21.Z1.1+E11/5
							3		=21.Z1.1-M5D	W1	3			+N1-X80	3		3								=21.Z1.1+E11/5
						1			=11.H11+.1-M1D	U1	4			+N1-X80	7		4								=11.H11+E11/1
						2			=11.H11+.1-M1D	V1	5			+N1-X80	8		5								=11.H11+E11/1
						3			=11.H11+.1-M1D	W1	6			+N1-X80	9		6								=11.H11+E11/1
					1				-X82	L1	7			+N1-X80	10		7								=61.L3+E11/1
					2				-X82	L2	8			+N1-X80	11		8								=61.L3+E11/1
					3				-X82	L3	9			+N1-X80	12		9								=61.L3+E11/1
											10														
											11														
											12														
											13														
											14														
											15														
											16														
									-X1	PE:a	PE1			+N1-X1	PE1		GNYE								=01.A1+E11/31
											PE2														

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +X3-X80	1	= XS1	function page
			design.	PED						+ X3	111/130
			check.					09 33 016 2648	98290	2953	page
change	date	name	norm		originally.	created for.	created by.	09330162748	WS450 KL x 5500 CNC Monolith		400

connector diagram

function text							=61.L4-W10D	cable name	terminal connection diagram +X3-X81 control hydraulic designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable name	=01.A1+N1-W31L								page/ path
							JZ-HF 3x0,5	cable type								cable type	JZ-HF 18x1								
									=21.Z1.1-B5M	2	1			=71.M1+N1-X350.7	1		1								=21.Z1.1+E11/5
									-X1	C5L+:b	2			=71.M1+N1-X350.7	2		2								=21.Z1.1+E11/5
									=71.M1+N1-X350.4	1	3			=11.H11+.1-B1L	2		5								=11.H11+E11/1
									=71.M1+N1-X350.4	5	4			=11.H11+.1-B1S	2										=11.H11+E11/1
									=22.Z2.2-K20E	2	5			=71.M1+N1-X350.217	1		5								=22.Z2.2+T1/20
									-X1	C8L+:a	6			+N1-X1	C8L+2:a		6								=22.Z2.2+T1/20
									=22.Z2.2-K20H	2	7			=71.M1+N1-X350.217	5		7								=22.Z2.2+T1/20
									-X1	C8ML:a	8			+N1-X1	C8ML2:a		8								=22.Z2.2+T1/20
									=11.H11-K20E	2	9			=71.M1+N1-X350.249	1		9								=11.H11+E11/20
									=11.H11-K20H	2	10			=71.M1+N1-X350.250	1		10								=11.H11+E11/20
									=11.H11-K20K	2	11			=71.M1+N1-X350.250	5		11								=11.H11+E11/20
							1		=61.L4-B10C	2	12			=71.M1+N1-X350.90	8										=61.L4+X3/10
									=61.L4-K10F	2	13			=71.M1+N1-X350.249	5										=61.L4+X3/10
											14														
											15														
											16														
									-X1	PE:a	PE1			+N1-X1	PE1		GNYE								=01.A1+E11/31
											PE2														

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +X3-X81	2	= XS1	function page 112/130
			design.	PED					+ X3	
			check.				09 33 016 2648	98290	2953	page 401
change	date	name	norm		originally. created for.	created by.	09330162748	WS450 KL x 5500 CNC Monolith		

connector diagram

function text							=61.L3-W1C	cable name	terminal connection diagram +X3-X82 grease lubrication steadies							cable name	=61.L3+T1-W1C								page/ path
							ÖZ-J 4x1.5mm²	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	ÖZ-J 4x1.5mm²								
							1		-X80	7	L1			=61.L3-M1D	U1		1								=61.L3+E11/1
							2		-X80	8	L2			=61.L3-M1D	V1		2								=61.L3+E11/1
							3		-X80	9	L3			=61.L3-M1D	W1		3								=61.L3+E11/1
							GNYE		-X1	PE:b	PE			=61.L3-M1D	PE		GNYE								=61.L3+E11/1

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +X3-X82	3	= XS1	function page	
			design.	PED					+ X3	113/130	
			check.					98290 WS450 KL x 5500 CNC Monolith	2953	page	
change	date	name	norm		originally.	created for.	created by.			402	

connector diagram

terminal connection diagram

+X12-X97

control water USONIC

function text	=91.S3+Z1-W30F	=91.S3+Z1-W30C	cable name	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable name	=01.A1+W1-W32F	page/ path
	JZ-HF 3x0,75	JZ-HF 3x0,75	cable type								cable type	JZ-HF 18x1,5	
				-X1	1:a	1			+E13-X97	1		1	=91.S3+E13/5
				-X1	2:a	2			+E13-X97	2		2	=91.S3+E13/5
				-X1	3:a	3			+E13-X97	3		3	=91.S3+E13/5
				-X1	4:b	4			+E13-X97	4		4	=91.S3+E13/5
				-X1	C5L+:a	5			+E13-X97	5		5	=91.S3+E13/5
				-X1	5:b	6			+E13-X97	6		6	=91.S3+E13/5
				-X1	6:b	7			+E13-X97	7		7	=91.S3+E13/5
				-X1	7:b	8			+E13-X97	8		8	=91.S3+E13/5
		1		=91.S3-K30D	2	9			+E13-X97	9		9	=91.S3+E11/30
		2		=91.S3-K30D	1	10			+E13-X97	10		10	=91.S3+E11/30
	1			=91.S3-K30G	2	11			+E13-X97	11		11	=91.S3+E11/30
	2			=91.S3-K30G	1	12			+E13-X97	12		12	=91.S3+E11/30
						13							
						14							
						15							
						16							
				-X1	PE:a	PE1			+E13-X97	PE1		GNYE	=01.A1+E11/31
				-X1	PE:a	PE2							=91.S3+E13/5

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +X12-X97	1	= XS1 + X12	function page 114/130
			design.	PED				09 33 016 2648	98290 WS450 KL x 5500 CNC Monolith	2953	page 403
			check.					09330162748			
change	date	name	norm		originally.	created for.	created by.				

connector diagram

function text	cable name	cable type	terminal connection diagram +Z1-X10 linear motor designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable name	=28.Y8.1-W1C	cable type	MSK_2 4x1,5	page/ path
			=28.Y8.1-M1C	U	1			=28.Y8.1-T1B	4		1			=28.Y8.1+Z1/1
			=28.Y8.1-M1C	V	2			=28.Y8.1-T1B	3		2			=28.Y8.1+Z1/1
			=28.Y8.1-M1C	W	3			=28.Y8.1-T1B	2		3			=28.Y8.1+Z1/1
			=28.Y8.1-W1C.1	SH	4			=28.Y8.1-T1B	SH		SH			=28.Y8.1+Z1/1
					5									
					6									
			=28.Y8.1-M1C	PE	PE1			=28.Y8.1-T1B	1		GNYE			=28.Y8.1+Z1/1
					PE2									

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +Z1-X10	1	= XS1
			design.	PED					+ Z1
			check.				09 33 006 2748	98290	2953
change	date	name	norm		originally. created for.	created by.	09 33 006 2648	WS450 KL x 5500 CNC Monolith	

function page 115/130

page 404

connector diagram

function text							=91.S1-W20D1	cable name	terminal connection diagram +Z1-X12 control measuring device							cable name	=91.S1-W3J	=28.Y8.1-W1F							page/ path
							ÖZ-J 4x0,5mm²	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	ÖZ-J 18x0.5mm²	LiYCY 2x0.5mm²							
									-X2	22	A1			=91.S1-X800.5	1		1								=28.Y8.3+Z1/10
							2		-X2	21	A2			-X1	1:b		2								=91.S1+Z1/20
									-X4	16	A3			=91.S1-X800.5	5		3								=28.Y8.4+Z1/10
									-X4	13	A4			=91.S1-X800.5	8		4								=28.Y8.1+Z1/10
									=91.S1-S20C-S20D4	NO	A5			=91.S1-X800.7	1		5								=28.Y8.1+Z1/10
											A6														
									=91.S1-S20C-S20D4	C	A7			-X1	2:b		7								=91.S1+Z1/20
											A8														
											A9														
											A10														
											A11														
											A12														
											B1														
											B2														
											B3														
											B4														
											B5														
											B6														
									=91.S1-S20C-B10C	NC	B7			=91.S1-X800.5	6		8								=28.Y8.1+Z1/10
									=91.S1-S20C-B10C	C	B8			=91.S1-X800.5	4		9								=28.Y8.1+Z1/10
									=28.Y8.1-B100F	T+	B9			=28.Y8.1-T1B-X101				WH							=28.Y8.1+Z1/1
									=28.C8.1-P20C	1	B10			=91.S1-X800.118	1		10								=28.C8.1+Z1/20
									=28.C8.1-P20C	2	B11			=91.S1-X800.118	3		11								=28.C8.1+Z1/20
									=28.Y8.1-B100F	T-	B12			=28.Y8.1-T1B-X101				BN							=28.Y8.1+Z1/1
									-X2	PE	PE1			-X1	PE:b		GNYE								=91.S1+Z1/3
									-X4	PE	PE2														=91.S1+Z1/3

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +Z1-X12	2	= XS1 / + Z1	function page 116/130
			design.	PED						
			check.				Han DD module, crimp male	98290	2953	page 405
change	date	name	norm		originally. / created for.	created by.	Han DD module, crimp female	WS450 KL x 5500 CNC Monolith		

connector diagram

function text							=91.S2-W2D	cable name	terminal connection diagram +Z1-X25 power supply EDDYCHEK							cable name									page/ path
							JZ-HF 3x1,5	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type									
											1														=91.S2+Z1/2
							2		=91.S2-G2C	-	2														=91.S2+Z1/2
							1		=91.S2-G2C	+'	3														=91.S2+Z1/2
											PE														=91.S2+Z1/2

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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +Z1-X25	3	= XS1 + Z1	function page 117/130
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 406
change	date	name	norm		originally.	created for.	created by.				

connector diagram

terminal connection diagram

+Z1-X30

measuring device scale A

function text	cable name	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable name	cable type	=28.Y8.1-W2H TOPGEBER 5Ω 2x0.15	page/ path
			=28.Y8.1-B2H-X1	1	1			=28.Y8.1-T1B-X7				PK	=28.Y8.1+Z1/2
			=28.Y8.1-B2H-X1	2	2			=28.Y8.1-T1B-X7				BU	=28.Y8.1+Z1/2
			=28.Y8.1-B2H-X1	3	3			=28.Y8.1-T1B-X7				RD	=28.Y8.1+Z1/2
			=28.Y8.1-B2H-X1	4	4			=28.Y8.1-T1B-X7				BK	=28.Y8.1+Z1/2
			=28.Y8.1-B2H-X1	5	5			=28.Y8.1-T1B-X7				BN	=28.Y8.1+Z1/2
			=28.Y8.1-B2H-X1	6	6			=28.Y8.1-T1B-X7				GN	=28.Y8.1+Z1/2
			=28.Y8.1-B2H-X1	7	7								=28.Y8.1+Z1/2
			=28.Y8.1-B2H-X1	8	8			=28.Y8.1-T1B-X7				GY	=28.Y8.1+Z1/2
					9								
			=28.Y8.1-B2H-X1	10	10			=28.Y8.1-T1B-X7				WHGN	=28.Y8.1+Z1/2
			=28.Y8.1-B2H-X1	11	11			=28.Y8.1-T1B-X7				WH	=28.Y8.1+Z1/2
			=28.Y8.1-B2H-X1	12	12			=28.Y8.1-T1B-X7				BNGN	=28.Y8.1+Z1/2
			=28.Y8.1-WH840	SH	GEH			=28.Y8.1-W2H	SH			SH	=28.Y8.1+Z1/2

Created with a trial version of Syncfusion PDF Library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +Z1-X30	4	= XS1 + Z1	function page 118/130
			design.	PED			623 Stecker	98290 WS450 KL x 5500 CNC Monolith	2953	page 407
			check.				315892-07			
change	date	name	norm		originally.	created for.	created by.			

connector diagram

terminal connection diagram

+Z1-X31

measuring device scale B

function text	cable name	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable name	=28.Y8.2-W1H	cable type	TOPGEBER 5Ω 2x0.15	page/ path
			=28.Y8.2-B1H-X1	1	1			=91.S1-X800.220	6		PK			=28.Y8.2+Z1/1
			=28.Y8.2-B1H-X1	2	2			=91.S1-X800.220	1°		BU			=28.Y8.2+Z1/1
			=28.Y8.2-B1H-X1	3	3			=91.S1-X800.220	3		RD			=28.Y8.2+Z1/1
			=28.Y8.2-B1H-X1	4	4			=91.S1-X800.220	7		BK			=28.Y8.2+Z1/1
			=28.Y8.2-B1H-X1	5	5			=91.S1-X800.220	1		BN			=28.Y8.2+Z1/1
			=28.Y8.2-B1H-X1	6	6			=91.S1-X800.220	5		GN			=28.Y8.2+Z1/1
			=28.Y8.2-B1H-X1	7	7			=91.S1-X800.220	4°		VT			=28.Y8.2+Z1/1
			=28.Y8.2-B1H-X1	8	8			=91.S1-X800.220	2		GY			=28.Y8.2+Z1/1
					9									
			=28.Y8.2-B1H-X1	10	10			=91.S1-X800.220	5°		WHGN			=28.Y8.2+Z1/1
			=28.Y8.2-B1H-X1	11	11			=91.S1-X800.220	5°		WH			=28.Y8.2+Z1/1
			=28.Y8.2-B1H-X1	12	12			=91.S1-X800.220	1°		BNGN			=28.Y8.2+Z1/1
				SH	GEH			=91.S1-X800.220	8°		SH			=28.Y8.2+Z1/1

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +Z1-X31	5	= XS1
			design.	PED						+ Z1
			check.					623 Stecker	98290	2953
change	date	name	norm		originally.	created for.	created by.	315892-07	WS450 KL x 5500 CNC Monolith	

function page 119/130

page 408

connector diagram

function text	cable name	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	cable name	cable type	page/ path
			terminal connection diagram +Z1-X43 pneumatic ultrasonic								=91.S3+L1-W20R	JZ-HF 25x1	
			=91.S3-B20S	3	1			=71.M1+L1-X500.8	1		1		=91.S3+E11/20
			=91.S3-B20S	1	2			=71.M1+L1-X500.8	2		2		=91.S3+E11/20
			=91.S3+E11-B610C	4	3			=71.M1+L1-X500.8	3		3		=91.S3+E11/20
					4			=71.M1+L1-X500.275	1		4		=91.S3+E11/30
					5			=71.M1+L1-X500.275	3		5		=91.S3+E11/30
					6			=71.M1+L1-X500.275	5		6		=91.S3+E11/30
					7			=71.M1+L1-X500.275	7		7		=91.S3+E11/30
					8								
					9								
					10								
					11								
					12								
					13								
					14								
					15								
					16								
					17								
					18								
					19								
					20								
					21								
					22								
					23								
					24								
			=91.S3-B20S	PE	PE1								=91.S3+E11/20
					PE2								

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +Z1-X43	6	= XS1 + Z1	function page 120/130
			design.	PED						
			check.				09 33 024 2648	98290	2953	page 409
change	date	name	norm		originally.	created for.	created by.	09 33 024 2748	WS450 KL x 5500 CNC Monolith	

connector diagram

function text							=01.A1+L1-W31F	cable name	terminal connection diagram +Z1-X45 control measuring unit							cable name	=01.A1+L1-W31F								page/ path
							JZ-HF 34x1,5	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	JZ-HF 34x1,5								
									-X1	C3L+:a	1			+L1-X1	C3L+2:b		1								=91.S1+Z1/1
									-X1	C3ML:a	2			+L1-X1	C3ML2:b		2								=91.S1+Z1/1
									-X1	C8L+:b	3			+L1-X1	C8L+2:b		3								=91.S1+Z1/1
									-X1	C8ML:a	4			+L1-X1	C8ML2:b		4								=91.S1+Z1/1
											5			+L1-X1	C6L+2:b		5								=91.S1+Z1/1
											6			+L1-X1	C6ML2:b		6								=91.S1+Z1/1
											7			+L1-X1	C5L+2:b		7								=91.S1+Z1/1
											8			+L1-X1	C5ML2:b		8								=91.S1+Z1/1
									-X1	X10L+:a	9			+L1-X45	C15		9								=91.S1+Z1/1
									-X1	X10ML:a	10			+L1-X45	C16		10								=91.S1+Z1/1
							11		+L1-X1	U9L+:b	11			-X1	20:a										=91.S2+Z1/2
							12		+L1-X1	U9ML:b	12			-X1	19:a										=91.S2+Z1/2
									-X1	2:a	13			+L1-X1	9:a		13								=91.S1+Z1/20
									-X1	1:a	14			+L1-X1	8:a		14								=91.S1+Z1/20
											15														
											16														
											17														
											18														
											19														
											20														
											21														
											22														
											23														
							24		+L1-X1	24:a	24			=28.C8.1-T1C	L1										=28.C8.1+Z1/1
							25		+L1-X1	25:a	25			=28.C8.1-T1C	L2										=28.C8.1+Z1/1
							26		+L1-X1	26:a	26			=28.C8.1-T1C	L3										=28.C8.1+Z1/1
											27														
											28														
											29														
											30														
											31														
											32														
									-X1	PE1:a	PE1			+L1-XPE	PE2		GNYE								=01.A1+E11/31
											PE2														

Created with a trial version of Synchron PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +Z1-X45	7	= XS1	function page
			design.	PED					+ Z1	121/130
			check.				09320323001	98290	2953	page
change	date	name	norm		originally.	created for.	created by.	09320323101 WS450 KL x 5500 CNC Monolith		410

connector diagram

terminal connection diagram

+Z1-X46

control pivot motor

function text	cable name	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable name	=91.S1-W3G	cable type	JZ-603 / OZ-603 18x2,5	page/ path
					1									
					2									
			=91.S1-X800.1	2	3			-X3	D10L+				3	=28.C8.1+Z1/10
			=91.S1-X800.1	3	4			-X3	E10ML				4	=28.C8.1+Z1/10
			=91.S1-X800.1	1	5			-X3	5				5	=28.C8.1+Z1/10
			=91.S1-X800.1	5	6			-X3	6				6	=28.C8.1+Z1/10
			=91.S1-X800.1	4	7			-X3	7				7	=28.C8.1+Z1/10
			=91.S1-X800.1	8	8			-X3	8				8	=28.C8.1+Z1/10
			=91.S1-X800.2	1	9			-X3	9				9	=28.C8.1+Z1/10
					10									
					11									
					12									
					13									
					14									
					15									
					16									
			-X1	PE:b	PE1			-X3	PE		GNYE			=91.S1+Z1/3
					PE2									

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +Z1-X46	8	= XS1 + Z1	function page 122/130
			design.	PED						
			check.				09330162748	98290	2953	page 411
change	date	name	norm		originally.	created for.	created by.	09 33 016 2648	WS450 KL x 5500 CNC Monolith	

connector diagram

function text	cable name	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	cable name	page/ path
			terminal connection diagram +Z1-X47 control measuring device									
					1							
					2							
					3							
					4							
					5							
					6							
					7							
					8							
					9							
					10							
					11							
					12							
					13							
					14							
					15							
					16							
					PE1							
					PE2							

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +Z1-X47	9	= XS1 + Z1	function page 123/130
			design.	PED							
			check.					09 33 016 2648	98290 WS450 KL x 5500 CNC Monolith	2953	page 412
change	date	name	norm		originally.	created for.	created by.	09330162748			

connector diagram

terminal connection diagram

+Z1-X48

Starting unit

function text	cable name	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	cable name	cable type	page/ path
	=91.S5-W10	PUR-OB 4x0,34									=91.S7+Z13-W11B	JZ-HF 18x1	
			=91.S7-A11B-B11C	14	1			=91.S5+Z13-X15.1	1		1		=91.S7+Z1/11
			=91.S7-A11B-B11C	13	2			=91.S5+Z13-X15.1	2		2		=91.S7+Z1/11
			=91.S7-A11B-B11E	14	3			=91.S5+Z13-X15.1	5		3		=91.S7+Z1/11
			=91.S7-A11B-B11G	14	4			=91.S5+Z13-X15.1	4		4		=91.S7+Z1/11
	BN/1		=91.S5-B10N		5			+Z13-X1	C5L+1:c		5		=91.S5+Z1/13
	WH/2		=91.S5-B10N		6			=91.S5+Z13-X15.8	1		6		=91.S5+Z1/13
	BU/3		=91.S5-B10N		7			+Z13-X1	C5ML+1:d		7		=91.S5+Z1/13
			-X58	2	8			+Z13-X1	C5L+2:a		8		=91.S3+E11/20
			-X58	3	9			+Z13-X1	C5ML2:a		9		=91.S3+E11/20
			-X58	1	10			=91.S5+Z13-X15.10	1		10		=91.S3+E11/20
			-X58	4	11			=91.S5+Z13-X15.10	5		11		=91.S3+E11/20
					12								
			=91.S7-A11B-B11E	21	13			+Z13-X60	7		10		=01.A3+E11/10
			=91.S7-A11B-B11G	22	14			+Z13-X60	8		11		=01.A3+E11/10
					15								
					16								
					PE1								
			=91.S7-A11B		PE2			+Z13-X1	PE1:d		GNYE		=01.A3+E11/10

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +Z1-X48	10	= XS1 + Z1	function page 124/130
			design.	PED							
			check.					09 33 016 2648	98290	2953	page 413
change	date	name	norm		originally.	created for.	created by.	09330162748	WS450 KL x 5500 CNC Monolith		

connector diagram

function text							=28.Y8.3-W1G1	cable name	terminal connection diagram +Z1-X49 probe A							cable name	=28.Y8.3-W1G								page/ path
							8x	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	8x								
							WH		-X2	1	1			=91.S1-X800.221	11		WH								=28.Y8.3+Z1/1
							BU		-X2	2	2			=91.S1-X800.221	3		BU								=28.Y8.3+Z1/1
							GY		-X2	3	3			=91.S1-X800.221	1		GY								=28.Y8.3+Z1/1
							PK		-X2	4	4			=91.S1-X800.221	9		PK								=28.Y8.3+Z1/1
							WH/GN		-X2	5	5			=91.S1-X800.221	11		WH/GN								=28.Y8.3+Z1/1
							YE		-X2	6	6			=91.S1-X800.221	10		YE								=28.Y8.3+Z1/1
							VT		-X2	7	7			=91.S1-X800.221	2		VT								=28.Y8.3+Z1/1
							BN/GN		-X2	8	8			=91.S1-X800.221	3		BN/GN								=28.Y8.3+Z1/1
											9														
											GEH														=28.Y8.3+Z1/1

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +Z1-X49	11	= XS1	function page 125/130
			design.	PED					+ Z1	
			check.				315892-05	98290	2953	page 414
change	date	name	norm		originally. created for.	created by.	AKUB071FS01620296800	WS450 KL x 5500 CNC Monolith		

connector diagram

function text							=28.Y8.4-W1G1	cable name	terminal connection diagram +Z1-X50 probe B							cable name	=28.Y8.4-W1G								page/ path
							8x	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	8x								
							WH		-X4	1	1			=91.S1-X800.221	15		WH								=28.Y8.4+Z1/1
							BU		-X4	2	2			=91.S1-X800.221	7		BU								=28.Y8.4+Z1/1
							GY		-X4	3	3			=91.S1-X800.221	5		GY								=28.Y8.4+Z1/1
							PK		-X4	4	4			=91.S1-X800.221	13		PK								=28.Y8.4+Z1/1
							WH/GN		-X4	5	5			=91.S1-X800.221	15		WH/GN								=28.Y8.4+Z1/1
							YE		-X4	6	6			=91.S1-X800.221	14		YE								=28.Y8.4+Z1/1
							VT		-X4	7	7			=91.S1-X800.221	6		VT								=28.Y8.4+Z1/1
							BN/GN		-X4	8	8			=91.S1-X800.221	7		BN/GN								=28.Y8.4+Z1/1
											9														
									=28.Y8.4-W872H		GEH			=28.Y8.4-W872G											=28.Y8.4+Z1/1

Created with a trial version of Synchfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +Z1-X50	12	= XS1	function page
			design.	PED						+ Z1	126/130
			check.					315892-05	98290	2953	page
change	date	name	norm		originally.	created for.	created by.	AKUB071FS01620296800	WS450 KL x 5500 CNC Monolith		415

connector diagram

terminal connection diagram

+Z1-X58

USONIC Sensor at roll

function text	cable name	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	cable name	page/ path
			=91.S3-B20V;=91.S3-B20X	+	2			-X48	8			=91.S3+E11/20
			=91.S3-B20V;=91.S3-B20X	-	3			-X48	9			=91.S3+E11/20
			=91.S3-B20V	0-10V	1			-X48	10			=91.S3+E11/20
			=91.S3-B20X	0-10V	4			-X48	11			=91.S3+E11/20

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	connector diagram +Z1-X58	13	= XS1 + Z1	function page 127/130
			design.	PED						
			check.					98290 WS450 KL x 5500 CNC Monolith	2953	page 416
change	date	name	norm		originally.	created for.	created by.			

connector diagram

terminal connection diagram

+Z2-X40

power supply USONIC

function text	cable name	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	cable name	page/ path
			+L1-X40	3	1			-X1	U8L1:a			=01.A1+E11/7
			+L1-X40	4	2			-X1	U8N1:a			=01.A1+E11/7
					3							
					PE							

Created with a trial version of Syncfusion PDF library.

change	date	name	norm		originally.	created for.	created by.
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES
			design.	PED			
			check.				

connector diagram +Z2-X40

09200032611

Han A 3 F

98290

WS450 KL x 5500 CNC Monolith

1

= XS1

+ Z2

2953

function page 128/130

page 417

connector diagram

function text							=01.A1+L1-W31H	cable name	terminal connection diagram +Z13-X59 Energy RSIS/RSLD							cable name	=01.A1+L1-W31H								page/ path
							JZ-HF 7x1,5	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	JZ-HF 7x1,5								
							1		+L1-X1	27:b	1			-X1	E8L+1										=01.A1+E11/8
							2		+L1-X1	28:b	2			-X1	E8ML1										=01.A1+E11/8
							3		+L1-X1	29:b	3			-X1	H8L+1:a										=01.A1+E11/8
							4		+L1-X1	30:b	4			-X1	H8ML1:a										=01.A1+E11/8
											5														
											6														
									-X1	PE2:c	PE1			+L1-XPE	PE2		GNYE								=01.A1+E11/31
											PE2														

Created with a trial version of Syncfusion PDF library.

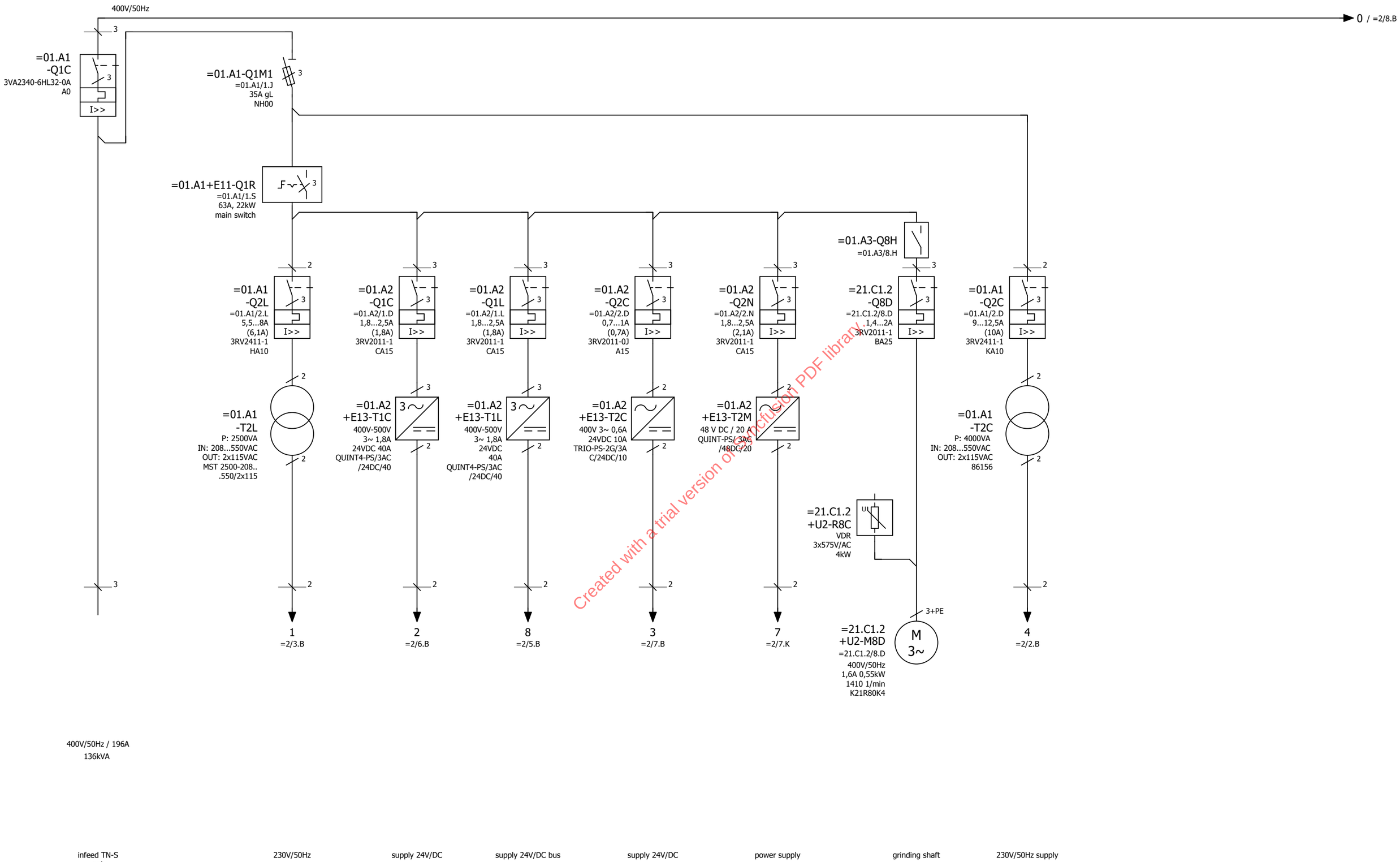
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +Z13-X59	1	= XS1	function page 129/130
			design.	PED						+ Z13	
			check.					09 33 006 2648	98290	2953	page 418
change	date	name	norm		originally.	created for.	created by.	09 33 006 2748	WS450 KL x 5500 CNC Monolith		

connector diagram

function text							=91.S7-W11B	cable name	terminal connection diagram +Z13-X60 control measuring unit RSIS/RSLD							cable name	=01.A1+L1-W31G								page/ path
							JZ-HF 18x1	cable type	designation of aim	connection	plug definition	bridges	Device connection point	designation of aim	connection	cable type	JZ-HF 18x1								
									-X1	C3L+1:a	1			+L1-X1	C3L+2:c		1								=91.S5+Z1/15
									-X1	C3ML1:a	2			+L1-X1	C3ML2:c		2								=91.S5+Z1/15
									-X1	C6L+1:a	3			+L1-X1	C6L+2:c		3								=91.S5+Z1/15
									-X1	C6ML1:a	4			+L1-X1	C6ML2:c		4								=91.S5+Z1/15
									-X1	C5L+1:a	5			+L1-X1	C5L+2:c		5								=91.S5+Z1/15
									-X1	C5ML+1:a	6			+L1-X1	C5ML2:c		6								=91.S5+Z1/15
							10		+Z1-X48	13	7			+L1-X1	9:b		7								=01.A3+E11/10
							11		+Z1-X48	14	8			+L1-X1	10:b		8								=01.A3+E11/10
											9														
											10														
											11														
											12														
											13														
											14														
											15														
											16														
									-X1	PE1:c	PE1			+L1-XPE	PE2		GNYE								=01.A1+E11/31
											PE2														

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	connector diagram +Z13-X60	2	= XS1	function page 130/130
			design.	PED						+ Z13	
			check.					09330162748	98290	2953	page 419
change	date	name	norm		originally.	created for.	created by.	09 33 016 2648	WS450 KL x 5500 CNC Monolith		



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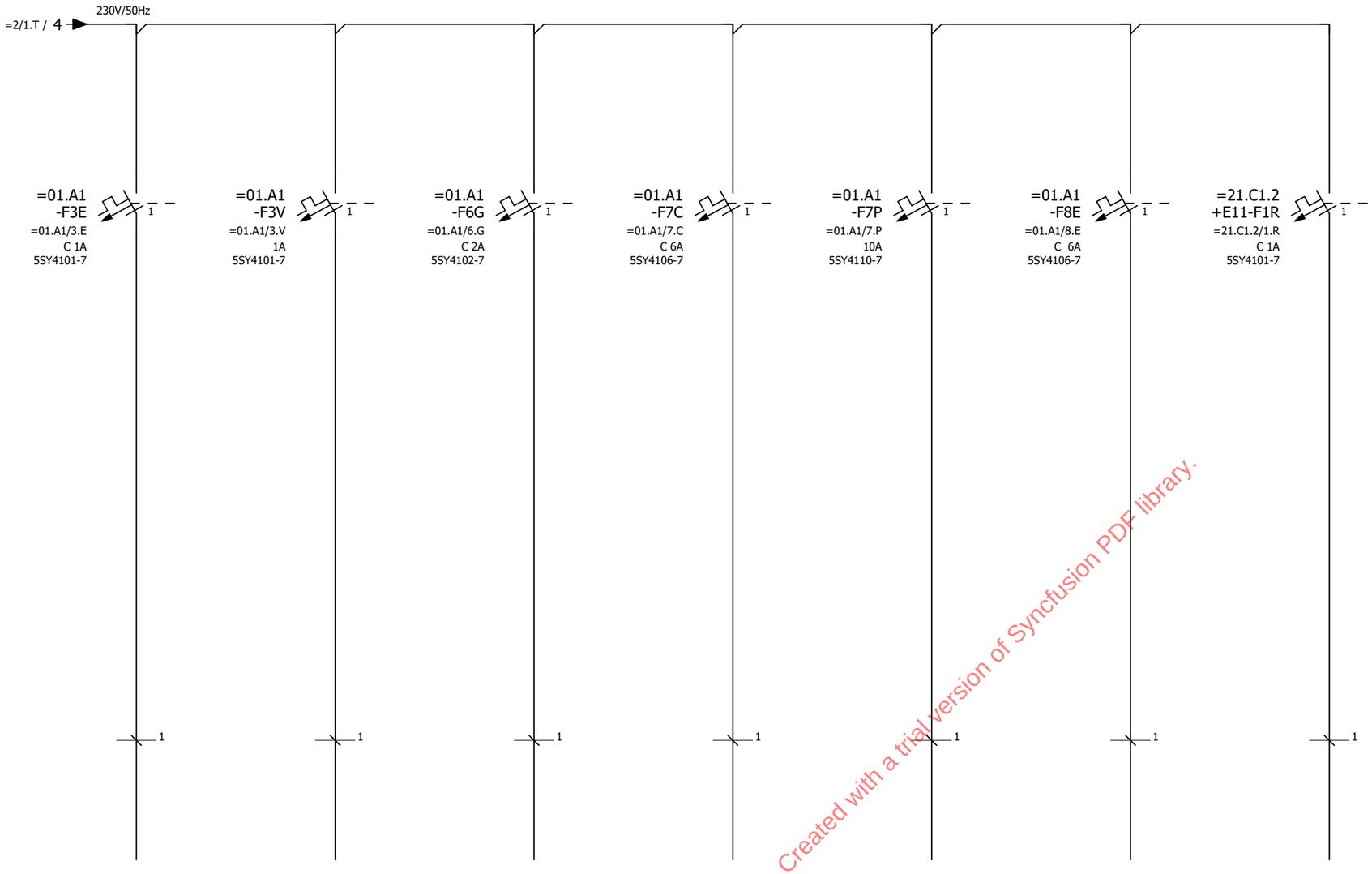
=XS1/130

2

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	single-line diagramm		= 2 / + E11	function page 1/13
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 420
change	date	name	norm		originally.	created for.	created by.				



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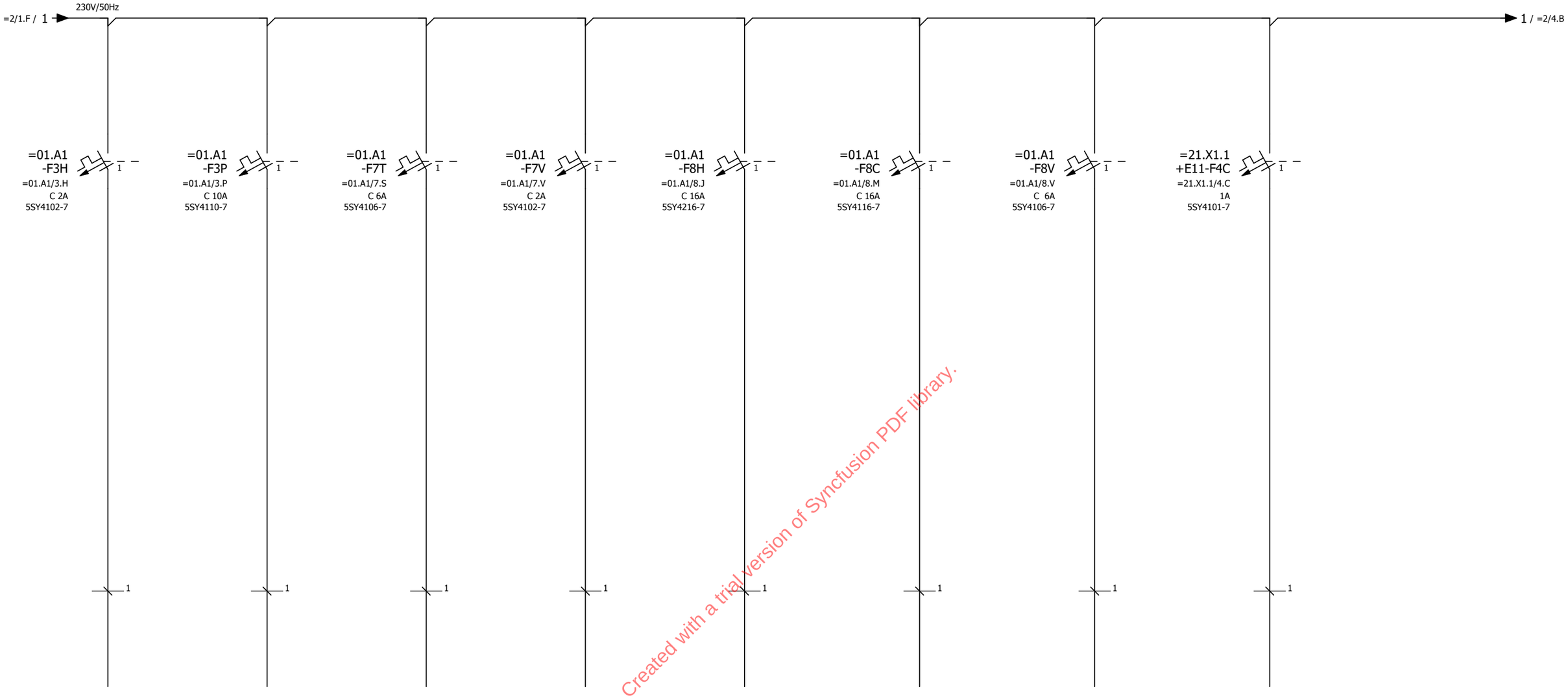
contol cabinet lighting	thermostat control cabinet	internal fan control cabinet	receptacles control cabinet	supply 230V/50Hz degaussing unit	supply 230V/50Hz USB Extender Opto Surf	grinding wheel fan

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	single-line diagramm		= 2 / + E11	function page 2/13
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 421
change	date	name	norm		originally.	created for.	created by.				



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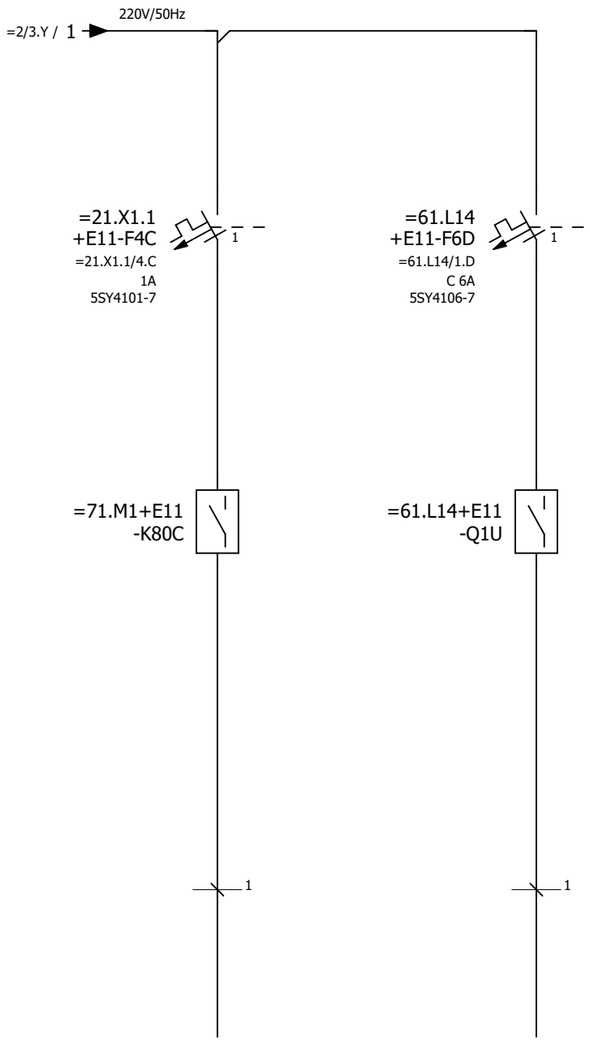
2 4

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	single-line diagramm		= 2 / + E11	function page 3/13
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 422
change	date	name	norm		originally.	created for.	created by.				



emergency retreat
X-axis when voltage failure

oil separator

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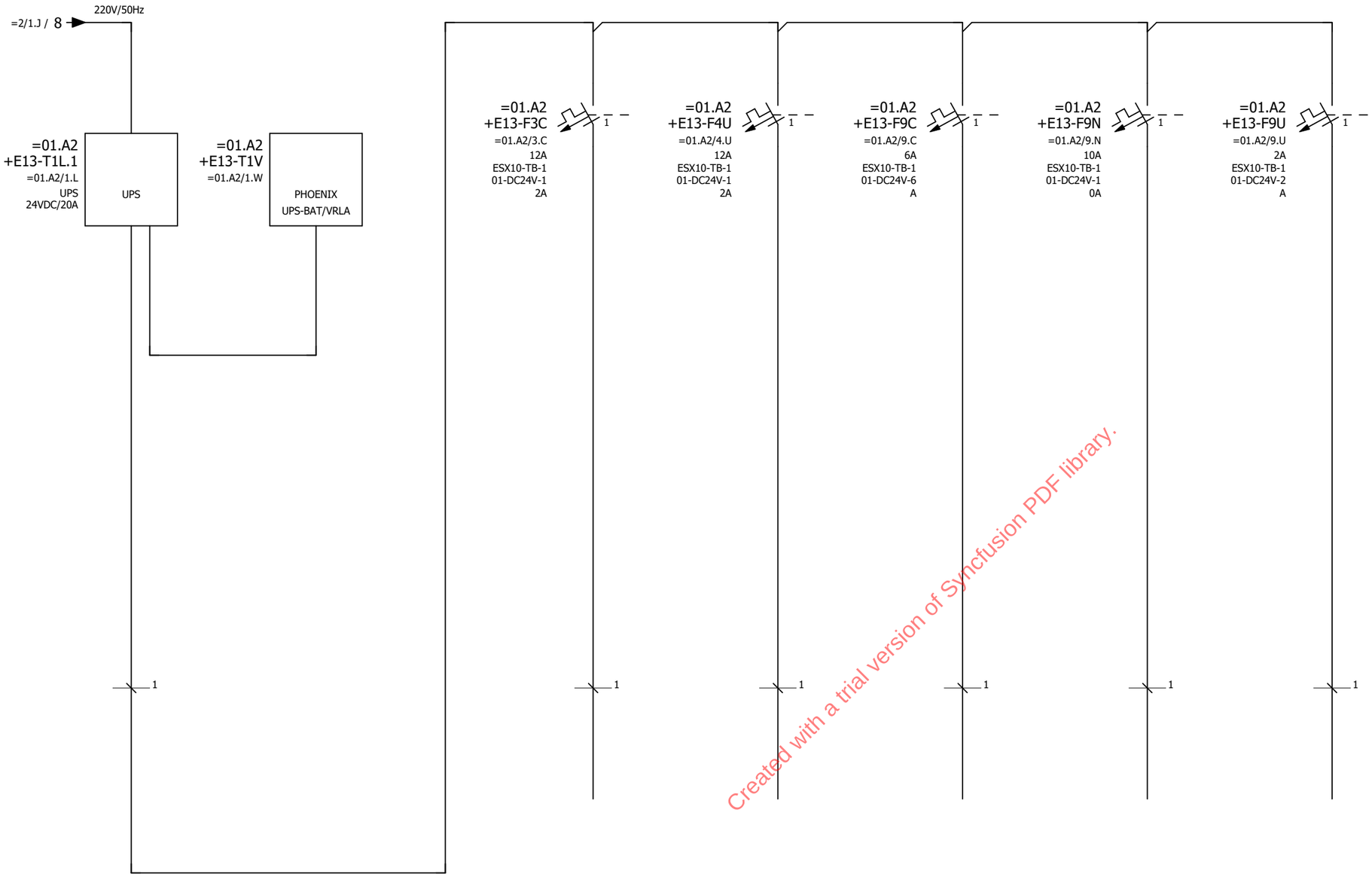
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	single-line diagramm		= 2 + E11	function page 4/13
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 423
change	date	name	norm		originally.	created for.	created by.				



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UPS control

supply 24V/DC
bus
coupler

24V/DC
supply PC
UPS Buffered

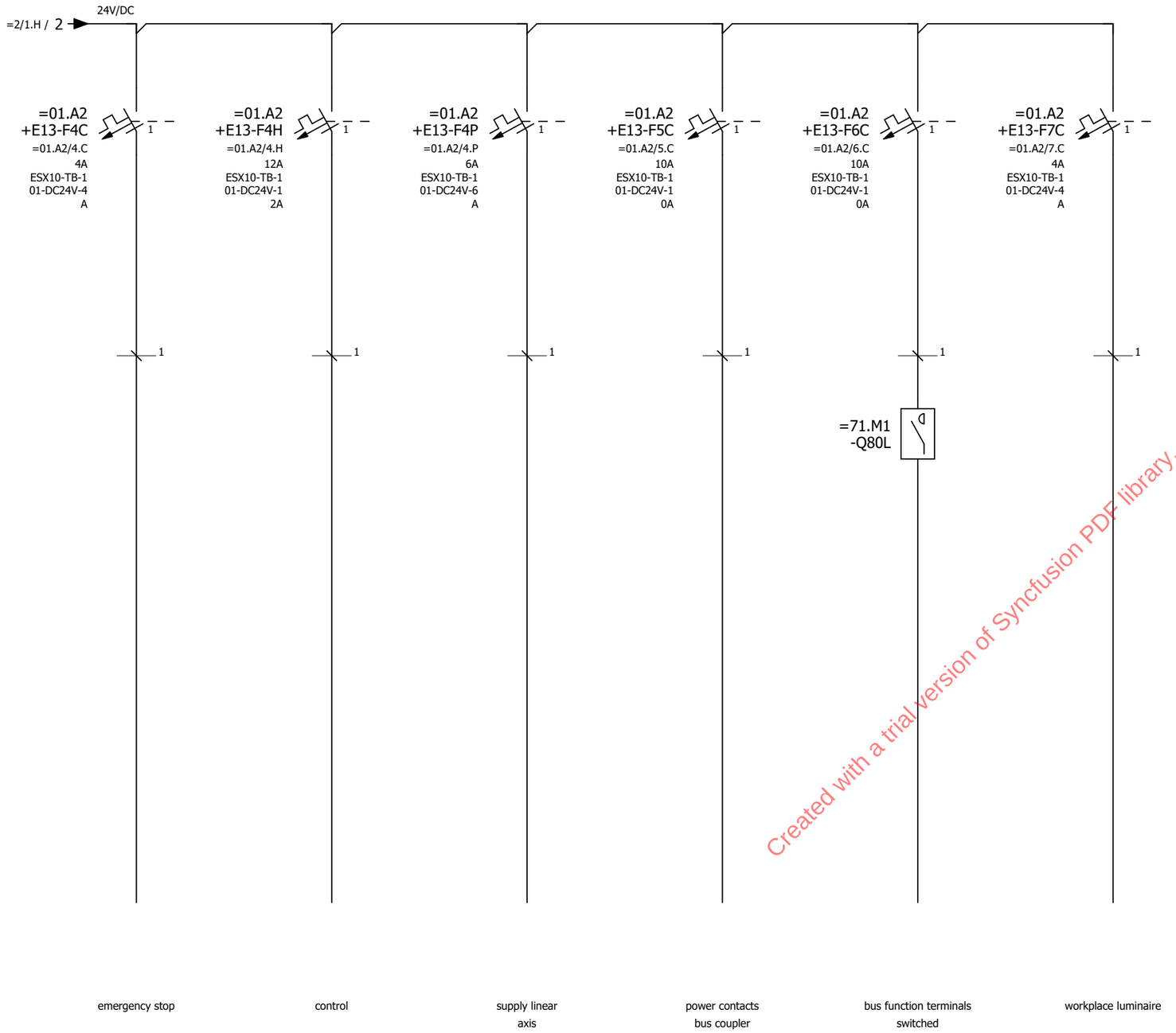
Versorgung
Pult +P1
USV gepuffert

Versorgung
+E2 Vibrationsmessung
USV gepuffert

power supply
EDDYCHEK

4 6

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	single-line diagramm		= 2 / + E11	function page 5/13
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 424
change	date	name	norm		originally.	created for.	created by.				



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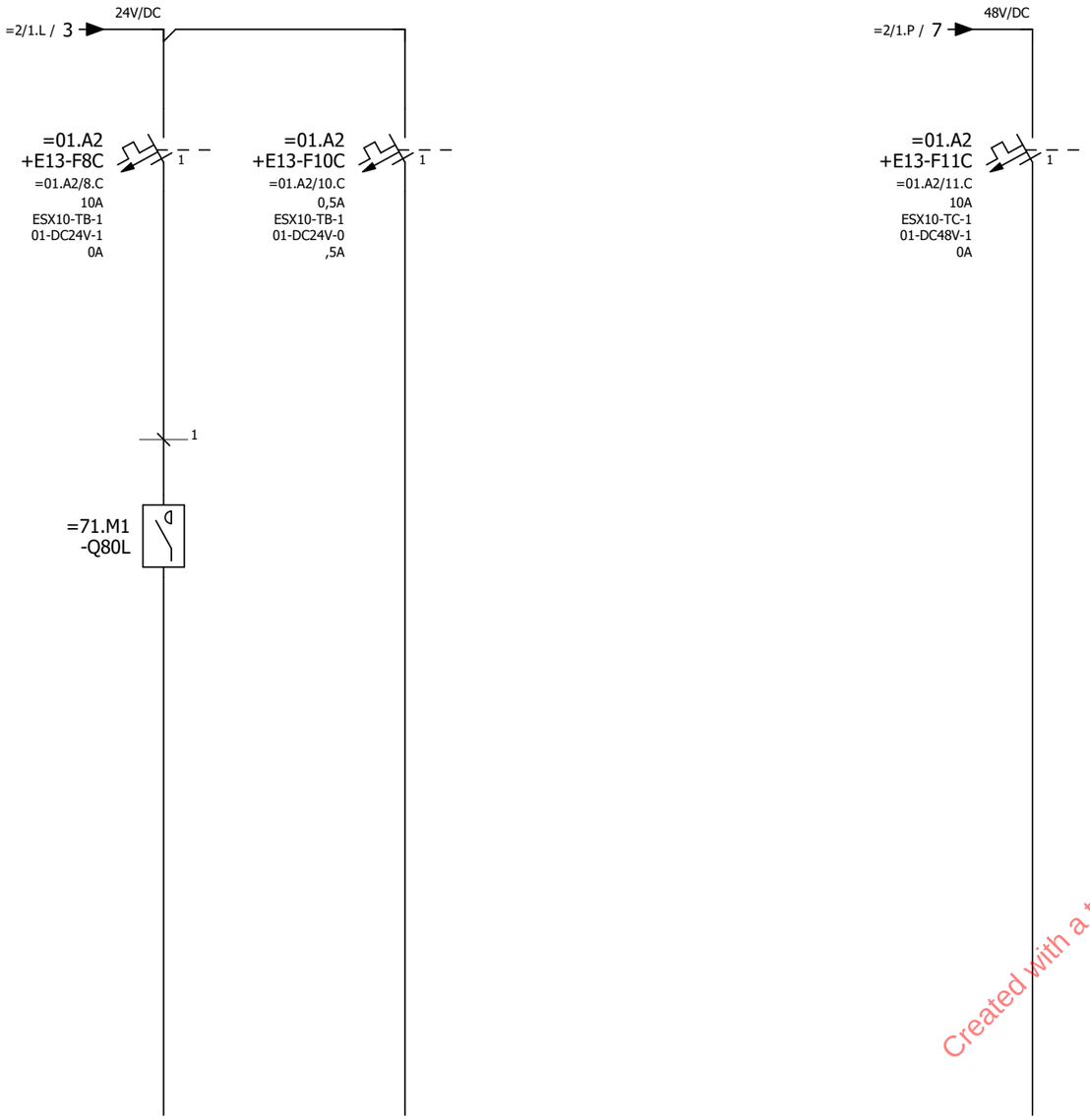
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	single-line diagramm		= 2 + E11	function page 6/13
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 425
change	date	name	norm		originally.	created for.	created by.				



bus function terminals
valves/brakes

CNC-supply 24V
control

power supply 24V/DC
Sevomotor

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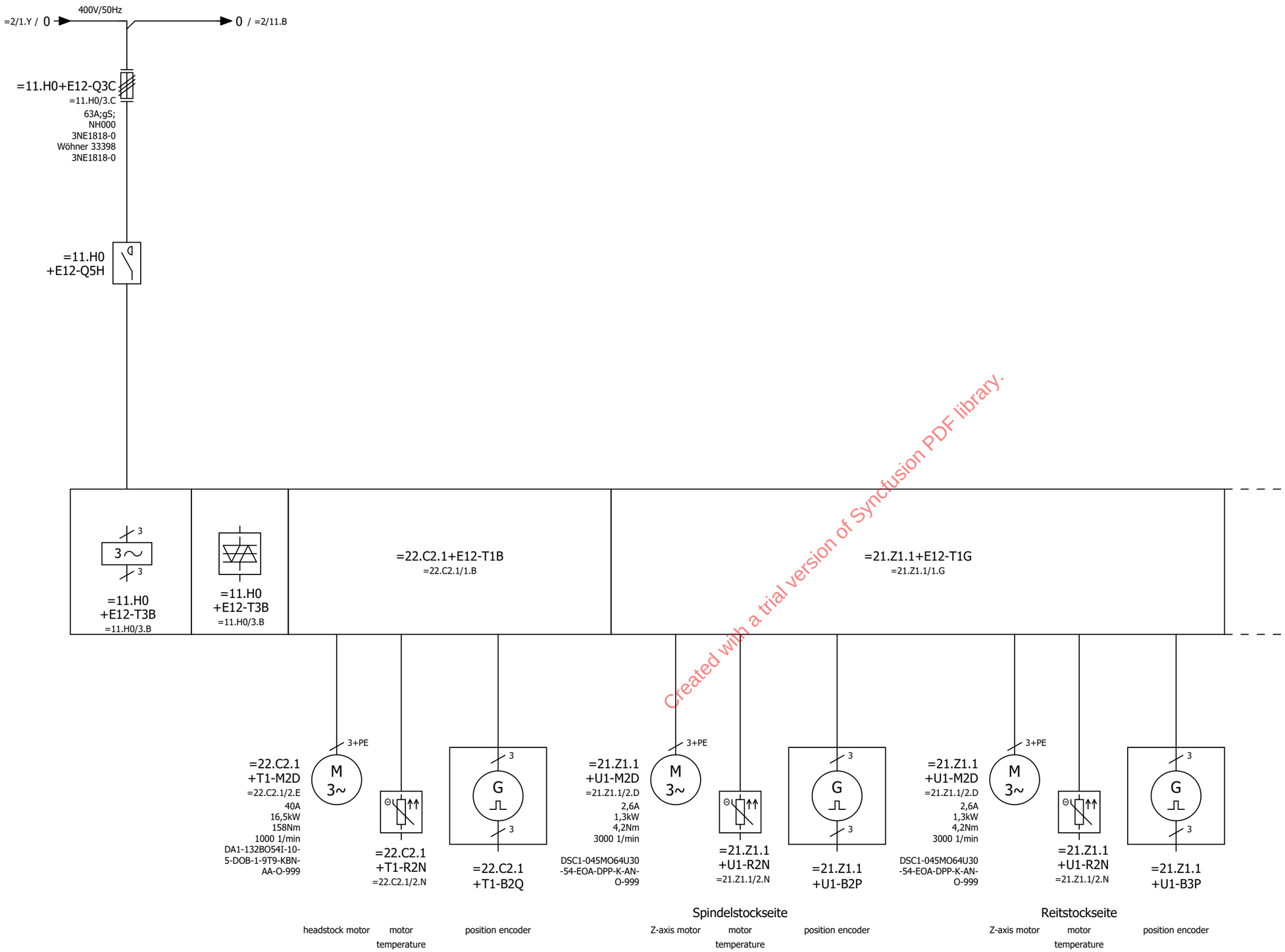
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	single-line diagramm		= 2 + E11	function page 7/13
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 426
change	date	name	norm		originally.	created for.	created by.				



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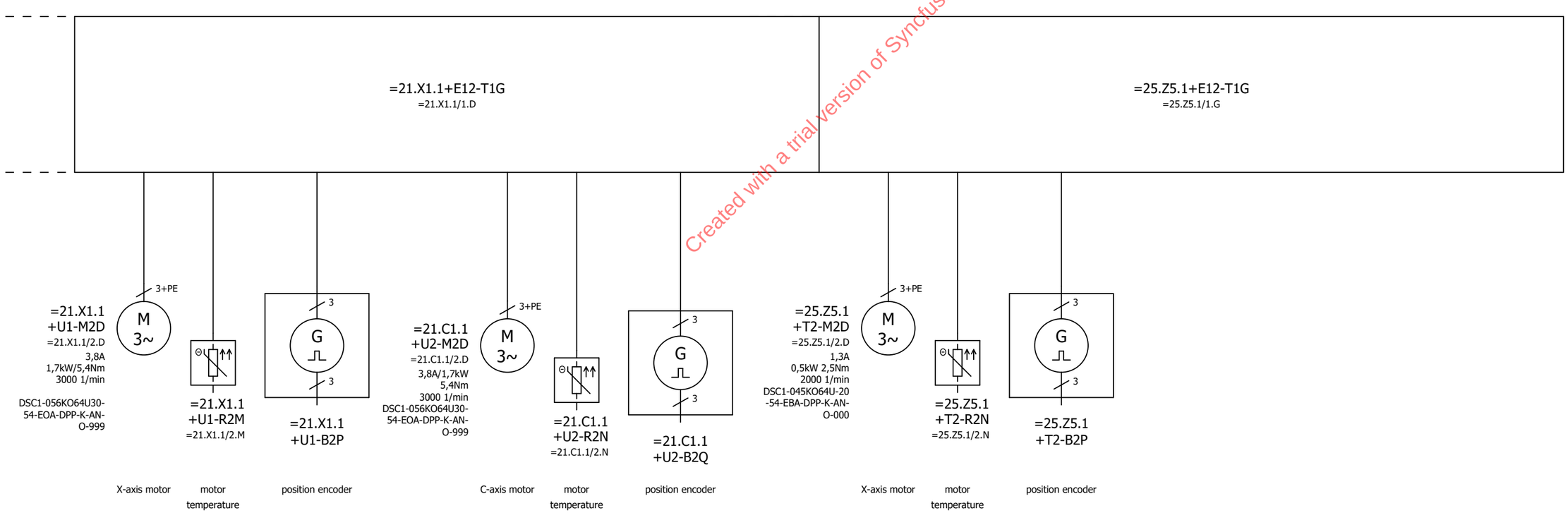
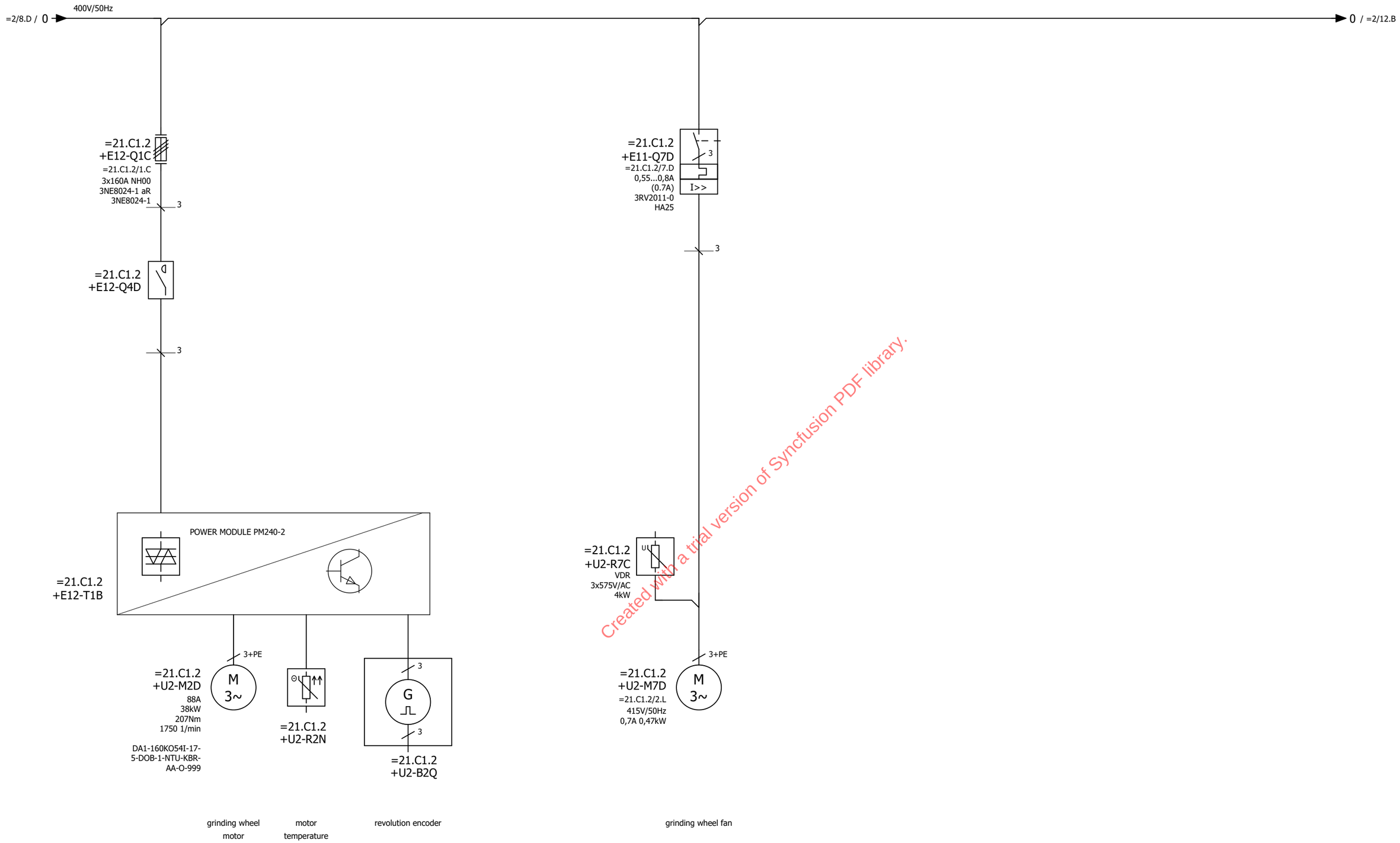
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	single-line diagramm		= 2 / function page 8/13
			design.	PED						+ E11
			check.						98290 WS450 KL x 5500 CNC Monolith	2953 / page 427
change	date	name	norm		originally.	created for.	created by.			



Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	single-line diagramm		= 2 + E11	function page 9/13
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 428
change	date	name	norm		originally.	created for.	created by.				



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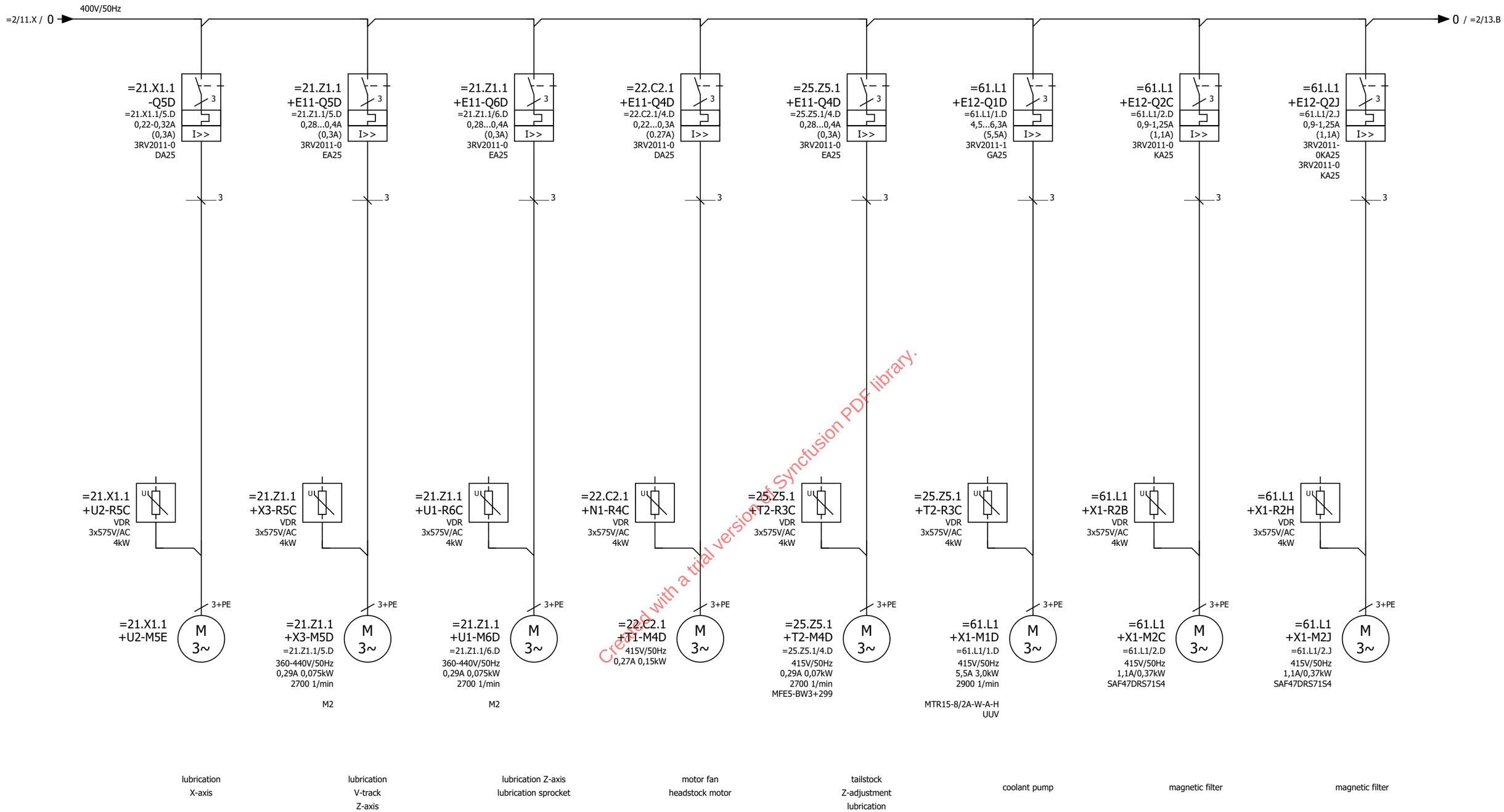
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	single-line diagramm		= 2 + E11	function page 11/13
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 429
change	date	name	norm		originally.	created for.	created by.				



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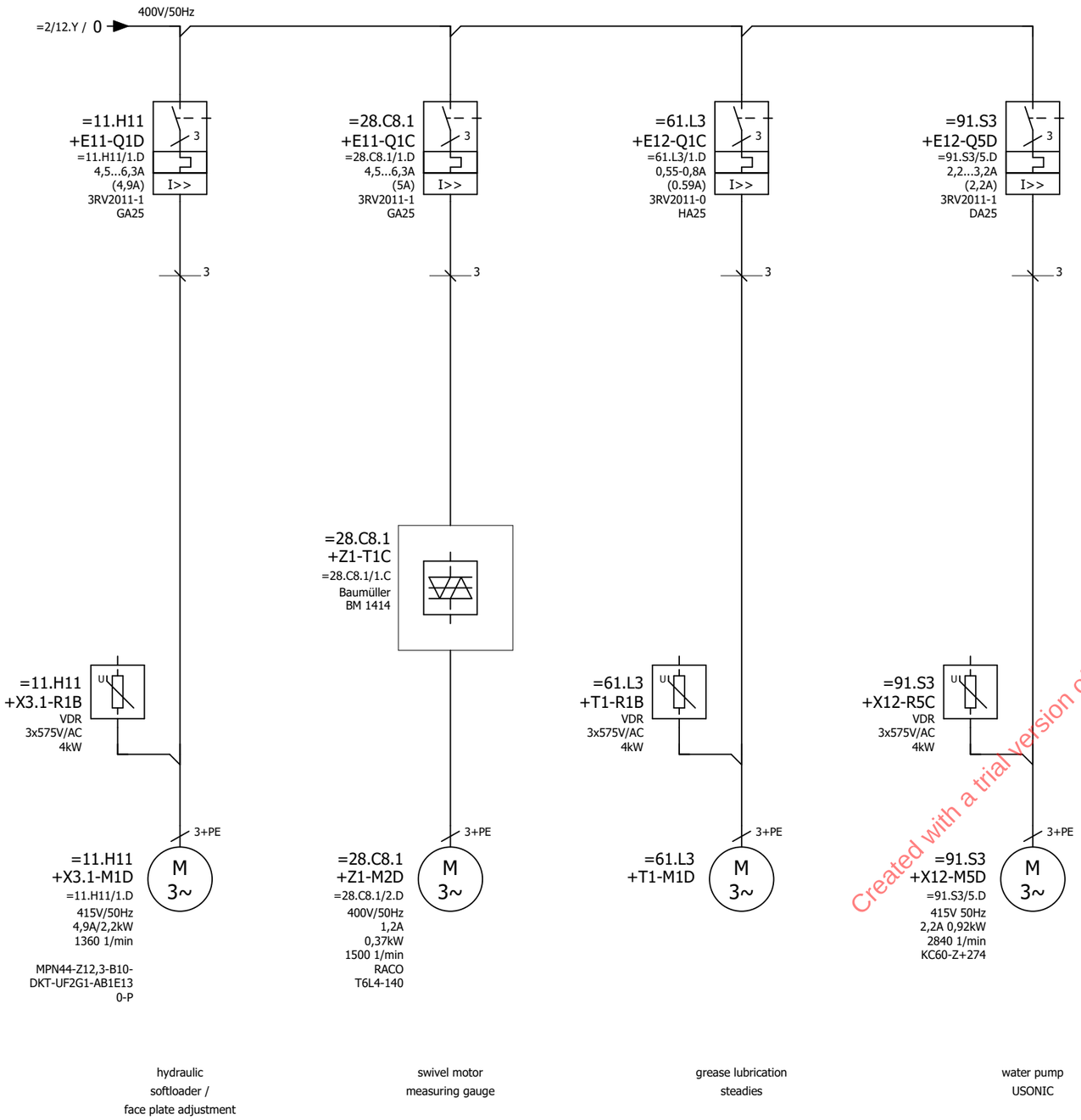
11 13

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	single-line diagramm		= 2 + E11	function page 12/13
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 430
change	date	name	norm		originally.	created for.	created by.				



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	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	single-line diagramm		= 2	function page
			design.	PED						+ E11	13/13
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				431

cable overview

Cable designation	source (from)	target (to)	cable type	totally cores	used cores	cross section	lenght (m)	remark	part no.
=01.A1+W1-W1C	+E11-X1	=61.L11+Z7-M1D	JZ-HF	5	4	1,5	15	energy swivel crane	1044813
		=61.L11+Z7-F1D							
=01.A1+W1-W30L	+E11-XPE		H07 V-K / (H)07 V-K	1	1	70,0	12	earth machine bed 1	1700458
=01.A1+W1-W30N	+E11-XPE		H07 V-K / (H)07 V-K	1	1	70,0	12	earth machine bed 2	1700458
=01.A1+W1-W30S	+E11-XPE	=01.A1+E3-X1	H07V-K	1	1	16	4	earth PC cabinet IBA	1700454
=01.A1+W1-W30V	+E11-XPE	+X1-X0	H07V-K	1	1	16	21	water supply	1700454
=01.A1+W1-W30X	+E11-XPE	+X12-X1	H07V-K	1	1	16	15	earth water ultrasonic	1700454
=01.A1+W1-W31B	+E11-X40	+S1-X40	JZ-HF	34	26	1,5	12	energy table/saddle	1203770
=01.A1+W1-W31D	+E13-X45	+S1-X45	JZ-HF	50	47	1	10	control table/saddle	1046630
=01.A1+W1-W31J	+E11-X80	+S1-X80	JZ-HF	18	13	1,5	12	energy headstock	1046580
=01.A1+W1-W31L	+E13-X81	+S1-X81	JZ-HF	50	37	1	10	control headstock	1046630
=01.A1+W1-W31P	+E11-X85	+S1-X85	JZ-HF	18	4	1,5	12	energy tailstock	1046580
=01.A1+W1-W31R	+E13-X86	+S1-X86	JZ-HF	34	23	1	10	control tailstock	1046629
=01.A1+W1-W31T	+E13-X65	+S1-X65	JZ-HF	18	9	1,5	10	control panel	1046580
=01.A1+W1-W32F	+E13-X97	+X12-X97	JZ-HF	18	13	1,5	15	USONIC water supply	1046580
=01.A1+W1-W32U	+E11-X90	+X1-X90	JZ-HF	18	12	1,5	21	energy water supply	1046580
=01.A1+W1-W32W	+E13-X91	+X1-X91	JZ-HF	25	12	1	19	control water supply	1106698
=01.A1+W1-W32X	+E2-X10	+E11-X10	JZ-HF	7	3	1,5	3	vibration gauge Synotech	1044811
=01.A1+W1-W32Z	+E3-X20	+E11-X20	JZ-HF	7	3	1,5	4	energy IBA	1044811
		+E13-X11							
=01.A2+W1-W32Y	+E2-X11	+E13-X11	JZ-HF	7	2	0,75	3	supply PC	6039425
=21.C1.1+W1-W2D	=21.X1.1+E12-T1G-X108	+S1-X12	TOPSERV® 109	4	4	1,5	13	C- axis	1166831
=21.C1.1+W1-W2M	=21.X1.1+E12-T1G-X8	+S1-X58	TOPGEBER 510	19	10	0,5	15	RPE grinding wheel	1133991
=21.C1.2+W1-W2B	+S1-X20	+E12-X1.1	TOPSERV 109	4	4	25	12	grinding wheel motor cable 1	1191023
=21.C1.2+W1-W2E	+S1-X21	+E12-X1.1	TOPSERV 109	4	4	25	12	grinding wheel motor cable 2	1191023
=21.C1.2+W1-W2L	=21.C1.2+E11-A2L-X2	+S1-X22	TOPGEBER 510	19	10	0,5	15	RPE grinding wheel	1133991
=21.X1.1+W1-W2C	=21.X1.1+E12-T1G-X107	+S1-X11	TOPSERV® 109	4	4	1,5	13	motor X-axis	1166831
	=21.X1.1+E12-X1G	+U1-X11							
=21.X1.1+W1-W2L	=21.X1.1+E12-A2L-X2	+S1-X57	ESK_6	16	10		15	RPE grinding wheel	1133991
=21.Z1.1+W1-W2D	=21.Z1.1+E12-T1G-X107	+S1-X9	TOPSERV® 109	4	4	1,5	13	motor z-axis headstockside	1166831
=21.Z1.1+W1-W2L	=21.Z1.1+E12-A2L-X2	+S1-X55	TOPGEBER 510	19	10		15	RLG z-axis motor headstockside	1133991
	=21.Z1.1+E12-A2L								
=21.Z1.1+W1-W3D	=21.Z1.1+E12-T1G-X108	+S1-X10	TOPSERV® 109	4	4	1,5	13	motor z-axis tailstockside	1166831
	=21.Z1.1+E12-X3G								
=21.Z1.1+W1-W3L	=21.Z1.1+E12-T1G-X8	+S1-X56	TOPGEBER 510	19	10		15	RLG z-axis tailstockside	1133991

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cable overview

Cable designation	source (from)	target (to)	cable type	totally cores	used cores	cross section	lenght (m)	remark	part no.
=22.C2.1+W1-W2D			TOPSERV 109	4	0	10	13	motor headstock	1210442
=22.C2.1+W1-W2M	=22.C2.1+E12-A2L-X2	+S1-X23	TOPGEBER 510	19	10		15	RPE headstock	1133991
	=22.C2.1+E12-A2L								
	+T1-X23								
=25.Z5.1+W1-W2D	+S1-X31	=25.Z5.1+E12-T1G-X107	TOPSERV 113 PUR	6	6	1,5	13	Motor z-axis tailstock adjustment	1162956
		=25.Z5.1+E12-T1G-X207							
		+T2-X10							
=25.Z5.1+W1-W2L	+S1-X59	=25.Z5.1+E12-T1G-X7	TOPGEBER 510	19	10		15	RLG z-axis tailstock adjustment	1133991
=71.M1+W1-W13N			KABEL	8	0	0,24	10	CP-Link 4 panel 1	6052740
=71.M1+W1-W20N	=71.M1+E13-X200.0	=71.M1+S1-X20M	ETHERNET	8	1	0,15	10	ethernet cable E13 - N1	1219547
=81.P11+W1-W1E1	+E13-X68	+S1-X68			37		20	handwheel	1027630
	+L1-X68								
=81.P11+W1-W1E2	+E13-X68.1	+S1-X68.1			37		20	handwheel	1027630
=91.S1+W1-W1D	+E11-X1	+S1-X50	JZ-HF	4	3	2,5	12	energy measuring unit	1044805
=91.S3+W1-W3X	=91.S3+E13-A3W	=91.S3+S1-X3X	ETHERNET	8	1	0,15	16	ultra sonic USB extender	1219547
=91.S5+W1-W13N			KABEL	1	0		1	CP-Link 4 panel +P2 RSIS	6052740
									6054910
=91.S5+W1-W93	=91.S5+E13-K1K	=91.S5+S1-X84	ETHERNET	8	1	0,15	13	RSIS	1219547
=91.S7+W1-W2H	=91.S7+E13-A2U-RJ45	=91.S7+L1-X3J	ETHERNET	8	1	0,15	18	OptoSurf USB interfaces	1219547
=91.S8+W1-W3T	=71.M1+E13-K15E	=91.S8+E2-K1K	ETHERNET	8	1	0,15	22	ethernet cable E1 - E2	1219547
=91.S8+W1-W4D			KOAX	1	0		18	vibration sensor +T1	1155683
=91.S8+W1-W4G			KOAX	1	0		21	vibration sensor +U2	1155683
=91.S8+W1-W4L			KOAX	1	0		17	vibration sensor +T3	1155683
=91.S8+W1-W4P			KOAX	1	0		17	vibration sensor +T4	1155683
=91.S9+W1-W13	=91.S9+E13-A1C-OUTX10	=91.S9+E3-K1F-LWL1	FO/p2-10	2	2	62,5/125	1	10m IBA LWL	6104825
	=91.S9+E13-A1C-INX11								

Created with a trial version of Syncfusion PDF library.

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien	HERKULES	cable overview		= 3	function page
			design.	PED					+ W1	2/12
			check.					98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.			433

cable part list

Component name	Quantity m	label	cable type	dimension	part-identnumber	function text
=01.A1-W1C	15	PVC-drag chains cable JZ-HF 5G1,5 mm² GY	JZ-HF		1044813	energy swivel crane
=01.A1-W30L	12	single wire H07V-K cable reel 1x70 mm² GNYE	H07 V-K / (H)07 V-K	1x70qmm;GNYE	1700458	earth machine bed 1
=01.A1-W30N	12	single wire H07V-K cable reel 1x70 mm² GNYE	H07 V-K / (H)07 V-K	1x70qmm;GNYE	1700458	earth machine bed 2
=01.A1-W30S	4	PVC-insulated single-core cable	H07V-K	1x16mm²;GNYE	1700454	earth PC cabinet IBA
=01.A1-W30V	21	PVC-insulated single-core cable	H07V-K	1x16mm²;GNYE	1700454	water supply
=01.A1-W30X	15	PVC-insulated single-core cable	H07V-K	1x16mm²;GNYE	1700454	earth water ultrasonic
=01.A1-W31B	12	PVC-drag chains cable JZ-HF 34G1,5 mm² GY	JZ-HF		1203770	energy table/saddle
=01.A1-W31D	10	PVC-drag chains cable JZ-HF 50G1 mm² GY	JZ-HF		1046630	control table/saddle
=01.A1-W31J	12	PVC-drag chains cable JZ-HF 18G1,5 mm² GY	JZ-HF		1046580	energy headstock
=01.A1-W31L	10	PVC-drag chains cable JZ-HF 50G1 mm² GY	JZ-HF		1046630	control headstock
=01.A1-W31P	12	PVC-drag chains cable JZ-HF 18G1,5 mm² GY	JZ-HF		1046580	energy tailstock
=01.A1-W31R	10	PVC-drag chains cable JZ-HF 34G1 mm² GY	JZ-HF		1046629	control tailstock
=01.A1-W31T	10	PVC-drag chains cable JZ-HF 18G1,5 mm² GY	JZ-HF		1046580	control panel
=01.A1-W32F	15	PVC-drag chains cable JZ-HF 18G1,5 mm² GY	JZ-HF		1046580	USONIC water supply
=01.A1-W32U	21	PVC-drag chains cable JZ-HF 18G1,5 mm² GY	JZ-HF		1046580	energy water supply
=01.A1-W32W	19	PVC-drag chains cable JZ-HF 25G1 mm² GY	JZ-HF		1106698	control water supply
=01.A1-W32X	3	PVC-drag chains cable JZ-HF 7G1,5 mm² GY	JZ-HF	7x1,5mm²	1044811	vibration gauge Synotech
=01.A1-W32Z	4	PVC-drag chains cable JZ-HF 7G1,5 mm² GY	JZ-HF	7x1,5mm²	1044811	energy IBA
=01.A2-W32Y	3	PVC-drag chains cable JZ-HF 7G0,75 mm² GY	JZ-HF	7x0,75mm²; high flexible	6039425	supply PC
=21.C1.1-W2D	13	Servo cable	TOPSERV® 109	4x1,5mm²;OR	1166831	C- axis
=21.C1.1-W2M	15	signal cable	TOPGEBER 512 PUR	3x2x0,14+4x0,14+4x0,25+2x0,5	1133991	RPE grinding wheel
=21.C1.2-W2B	12	Servo cable	TOPSERV 109 PUR	4x25,0mm²;OR	1191023	grinding wheel motor cable 1
=21.C1.2-W2E	12	Servo cable	TOPSERV 109 PUR	4x25,0mm²;OR	1191023	grinding wheel motor cable 2
=21.C1.2-W2L	15	signal cable	TOPGEBER 512 PUR	3x2x0,14+4x0,14+4x0,25+2x0,5	1133991	RPE grinding wheel
=21.X1.1-W2C	13	Servo cable	TOPSERV® 109	4x1,5mm²;OR	1166831	motor X-axis

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cable part list

Component name	Quantity m	label	cable type	dimension	part-identnumber	function text
=21.X1.1-W2L	15	signal cable	TOPGEBER 512 PUR	3x2x0,14+4x0,14+4x0,25+2x0,5	1133991	RPE grinding wheel
=21.Z1.1-W2D	13	Servo cable	TOPSERV® 109	4x1,5mm²;OR	1166831	motor z-axis headstockside
=21.Z1.1-W2L	15	signal cable	TOPGEBER 512 PUR	3x2x0,14+4x0,14+4x0,25+2x0,5	1133991	RLG z-axis motor headstockside
=21.Z1.1-W3D	13	Servo cable	TOPSERV® 109	4x1,5mm²;OR	1166831	motor z-axis tailstockside
=21.Z1.1-W3L	15	signal cable	TOPGEBER 512 PUR	3x2x0,14+4x0,14+4x0,25+2x0,5	1133991	RLG z-axis tailstockside
=22.C2.1-W2D	13	Servo cable	TOPSERV 109	4x 10,0qmm;ORANGE	1210442	motor headstock
=22.C2.1-W2M	15	signal cable	TOPGEBER 512 PUR	3x2x0,14+4x0,14+4x0,25+2x0,5	1133991	RPE headstock
=25.Z5.1-W2D	13	Servo cable	TOPSERV 113 PUR	4x1,5+1x2x1,0mm²;OG	1162956	Motor z-axis tailstock adjustment
=25.Z5.1-W2L	15	signal cable	TOPGEBER 512 PUR	3x2x0,14+4x0,14+4x0,25+2x0,5	1133991	RLG z-axis tailstock adjustment
=71.M1-W13N	10	profinet 4pair cabling Cat.6A PUR high flexible 4X2X24AWG	ETHERLINE FD P Cat. 6A	8 x 24 AWG GN	6052740	CP-Link 4 panel 1
=71.M1-W20N	10	cable/wire bulk	HELUKAT100S	8 x 0,15mm² GN	1219547	ethernet cable E13 - N1
=81.P11-W1E1	20	Data- and Computer cable TRONIC-CY 36x0,14 mm² GR	TRONIC-CY (LiY-CY)	36x0,14mm²;shielded.	1027630	handwheel
=81.P11-W1E2	20	Data- and Computer cable TRONIC-CY 36x0,14 mm² GR	TRONIC-CY (LiY-CY)	36x0,14mm²;shielded.	1027630	=
=91.S1-W1D	12	PVC-drag chains cable JZ-HF 4G2,5 mm² GY	JZ-HF	4x2,5mm²	1044805	energy measuring unit
=91.S3-W3X	16	cable/wire bulk	HELUKAT100S	8 x 0,15mm² GN	1219547	ultra sonic USB extender
=91.S5-W13N	1	profinet 4pair cabling Cat.6A PUR high flexible 4X2X24AWG	ETHERLINE FD P Cat. 6A	8 x 24 AWG GN	6052740	CP-Link 4 panel +P2 RSIS
=91.S5-W13N	1	plug connector M	09451511560	8p RJ45 IDC	6054910	=
=91.S5-W93	13	cable/wire bulk	HELUKAT100S	8 x 0,15mm² GN	1219547	RSIS
=91.S7-W2H	18	cable/wire bulk	HELUKAT100S	8 x 0,15mm² GN	1219547	OptoSurf USB interfaces
=91.S8-W3T	22	cable/wire bulk	HELUKAT100S	8 x 0,15mm² GN	1219547	ethernet cable E1 - E2
=91.S8-W4D	18	coaxial cable	RG-58C/U	50 OHM	1155683	vibration sensor +T1
=91.S8-W4G	21	coaxial cable	RG-58C/U	50 OHM	1155683	vibration sensor +U2
=91.S8-W4L	17	coaxial cable	RG-58C/U	50 OHM	1155683	vibration sensor +T3
=91.S8-W4P	17	coaxial cable	RG-58C/U	50 OHM	1155683	vibration sensor +T4
=91.S9-W13	1		FO/p2-10		6104825	10m IBA LWL

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cable part list

Component name	Quantity m	label	cable type	dimension	part-identnumber	function text
=STE-W1A	69	cable duct	RLV 60.100	3000,00x 100,00x 60,00mm	1143955	
=STE-W1A	69	cable duct cover	RDV 100	3000,00x 100,00x 13,00mm	1190475	

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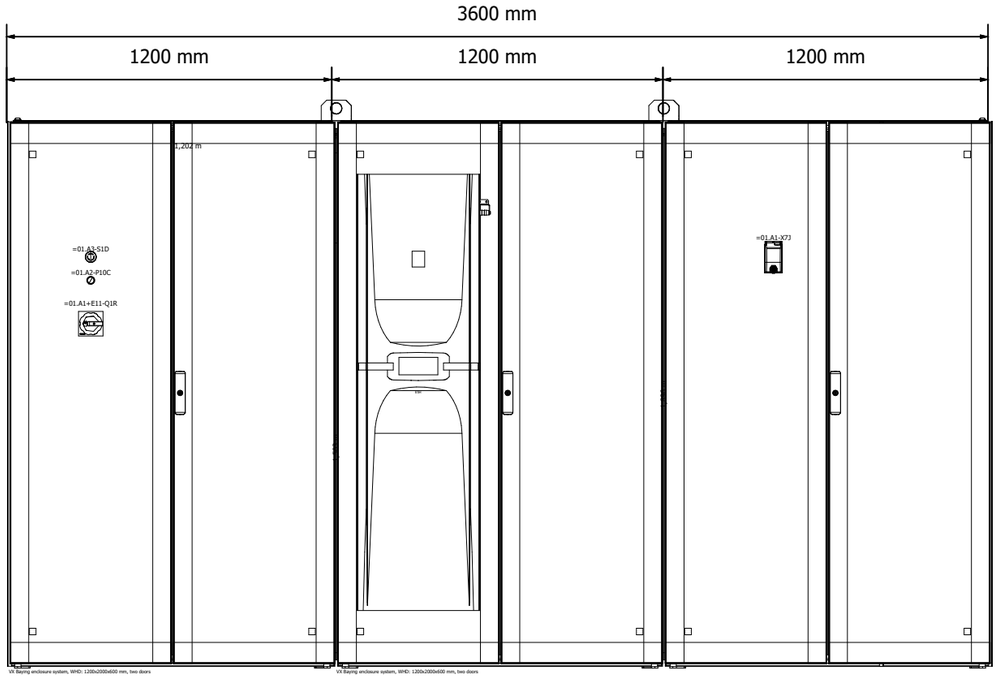
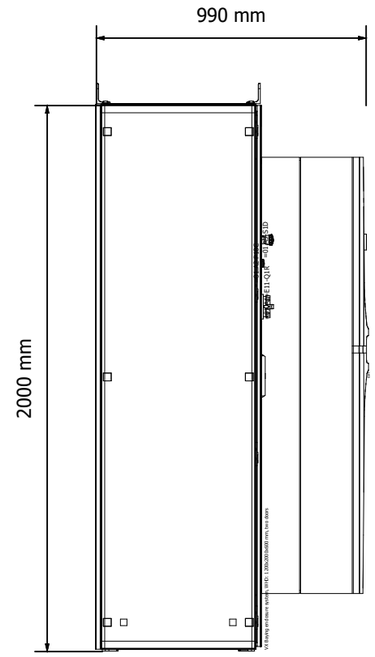
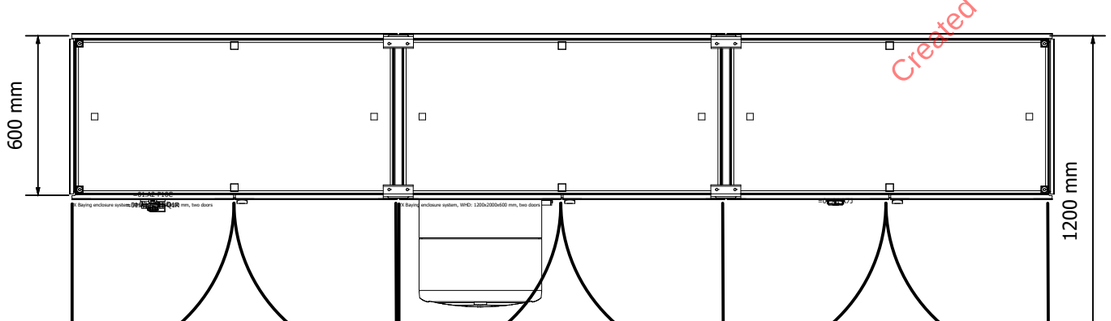
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	cable part list		= 3 / + W1	function page 12/12
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 436
change	date	name	norm		originally.	created for.	created by.				



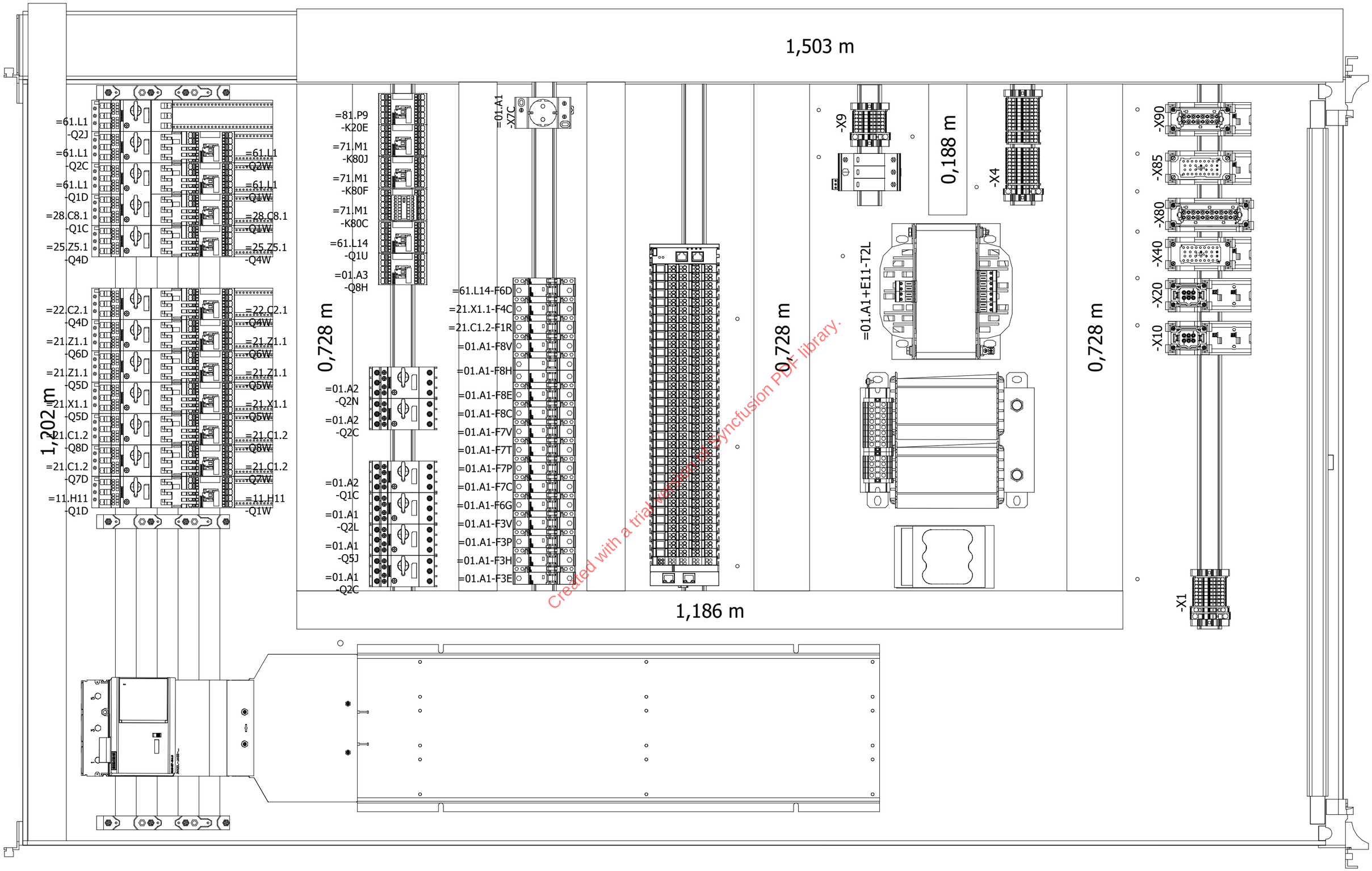


main feeder cable

+E1 Schaltschrank



Created with a trial version of Syncfusion PDF library.



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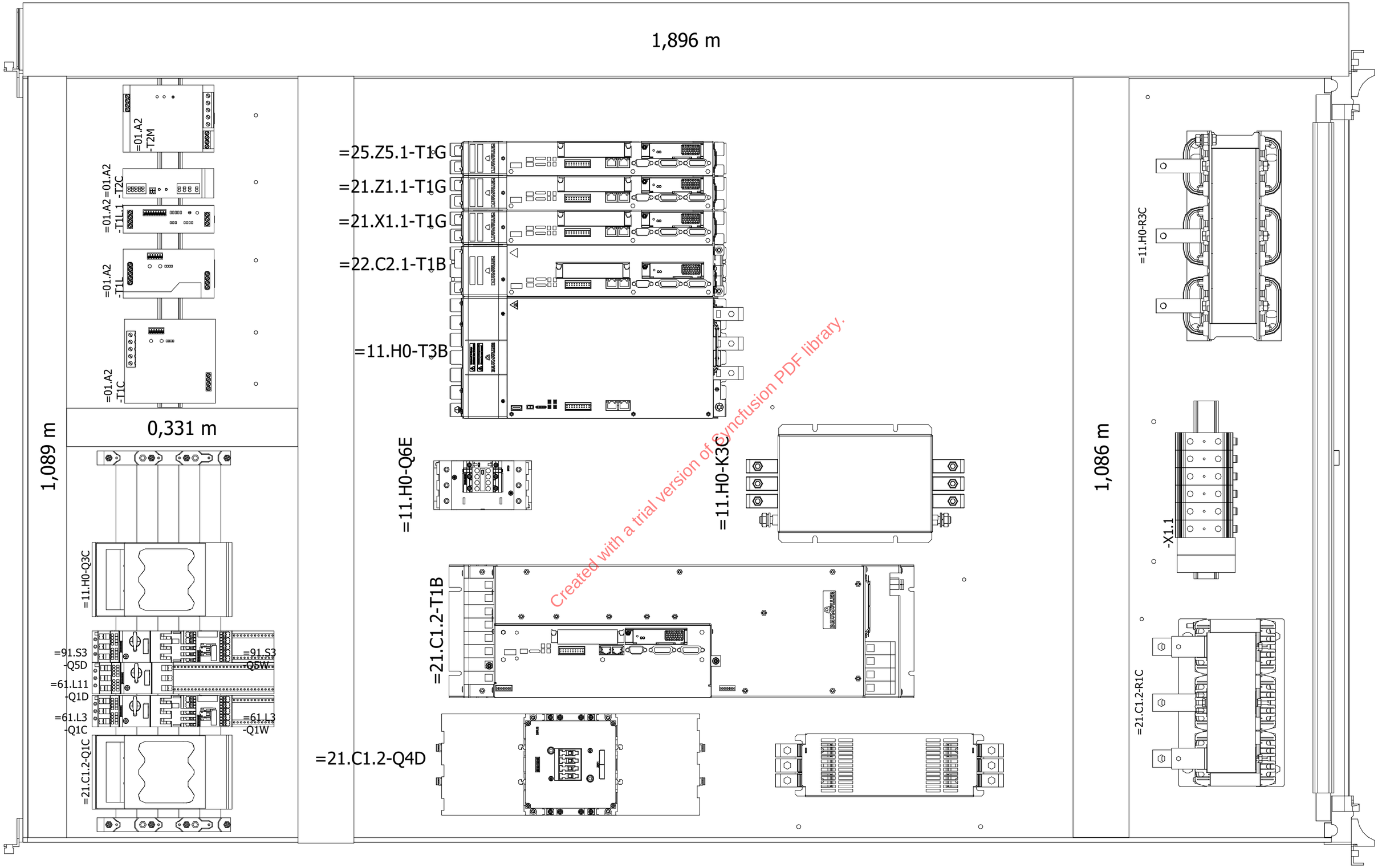
	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	control cabinet +E11	1	= 4 + E11	function page 2/11
			design.	PED					98290 WS450 KL x 5500 CNC Monolith	2953	page 438
			check.								
change	date	name	norm		originally.	created for.	created by.				



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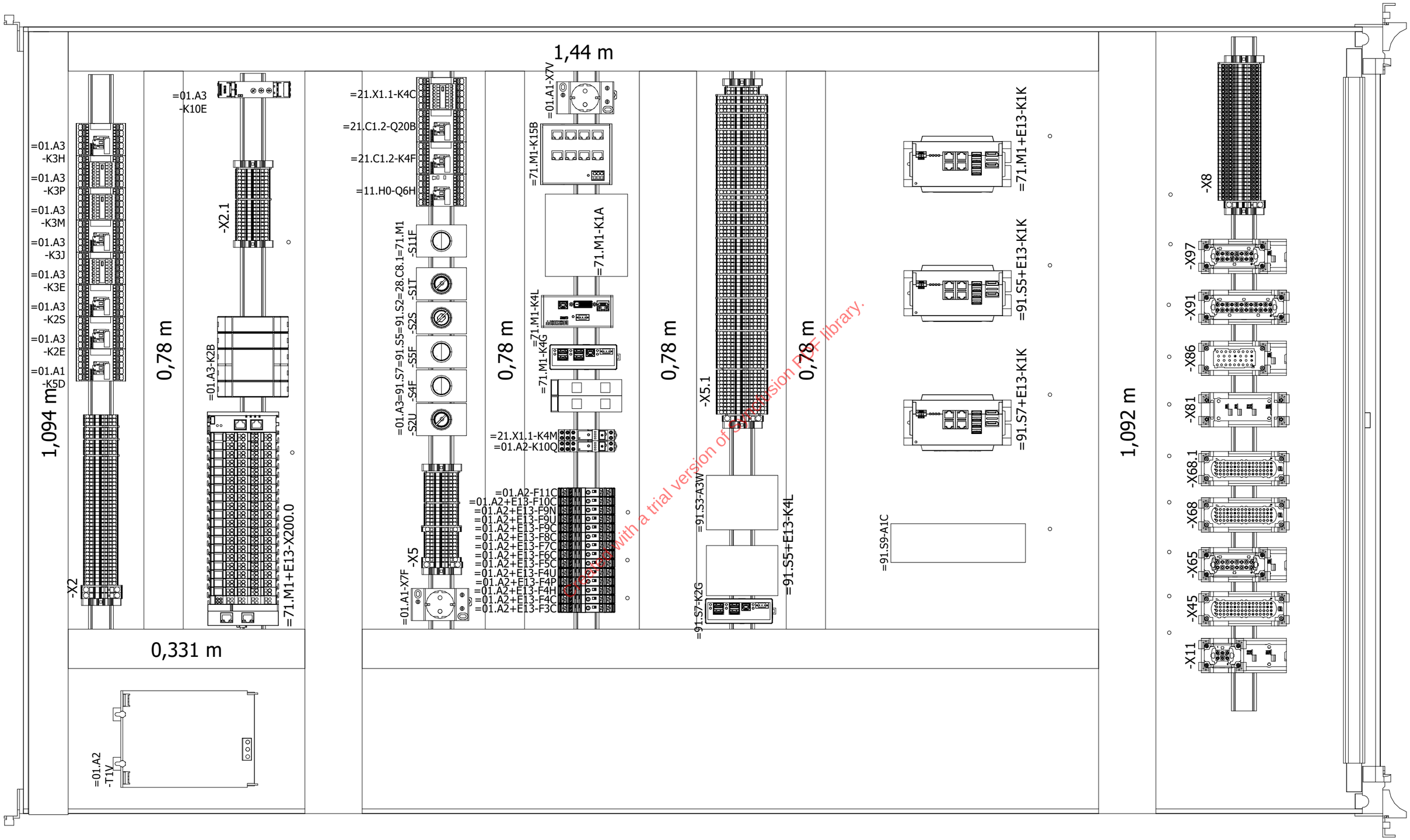
2 6

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	control cabinet +E12	1	= 4 + E12	function page 4/11
			design.	PED					98290 WS450 KL x 5500 CNC Monolith	2953	page 439
			check.								
change	date	name	norm		originally.	created for.	created by.				



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4 7

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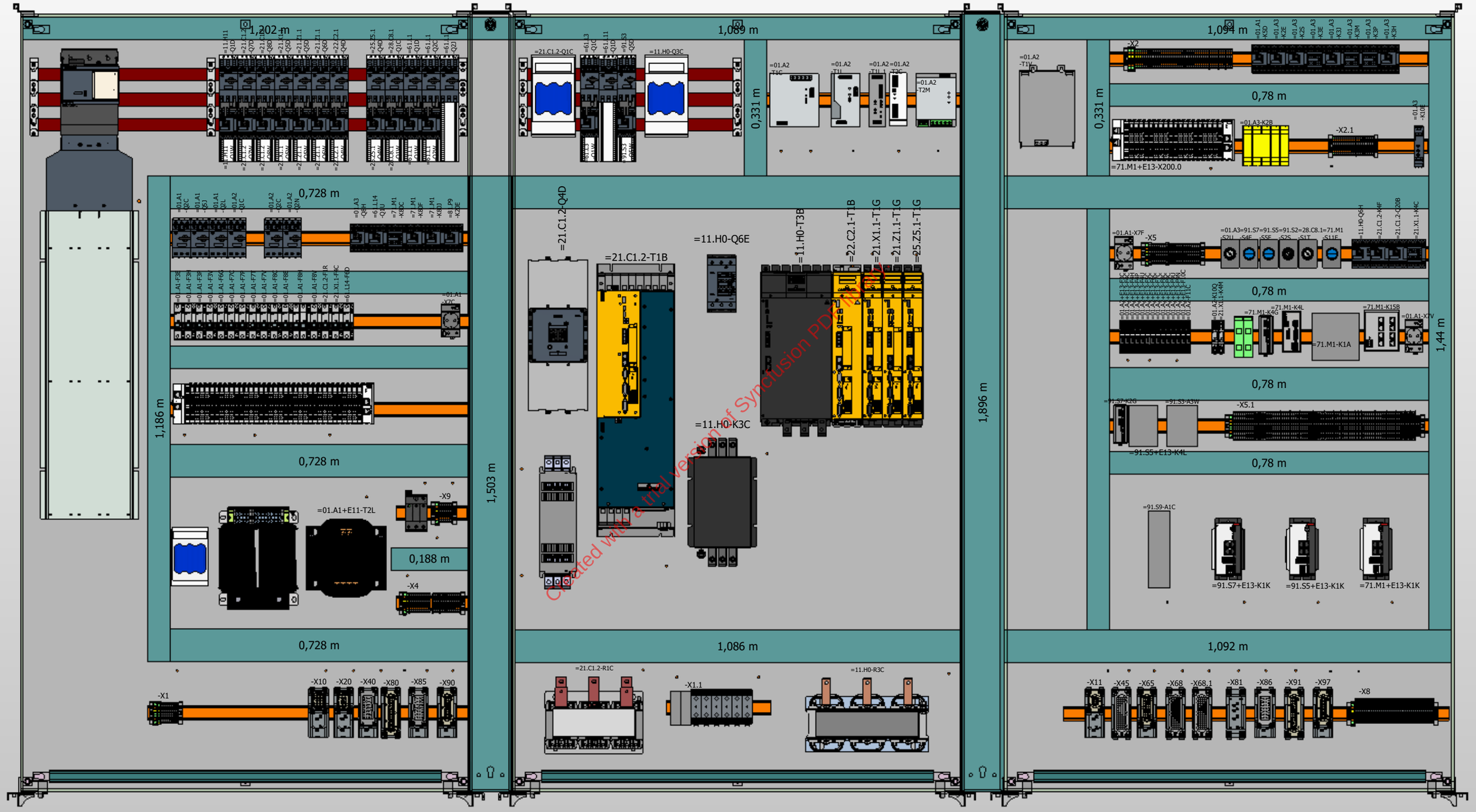
			design.	PED					98290 WS450 KL x 5500 CNC Monolith	2953	page 440
			check.								
change	date	name	norm		originally.	created for.	created by.				



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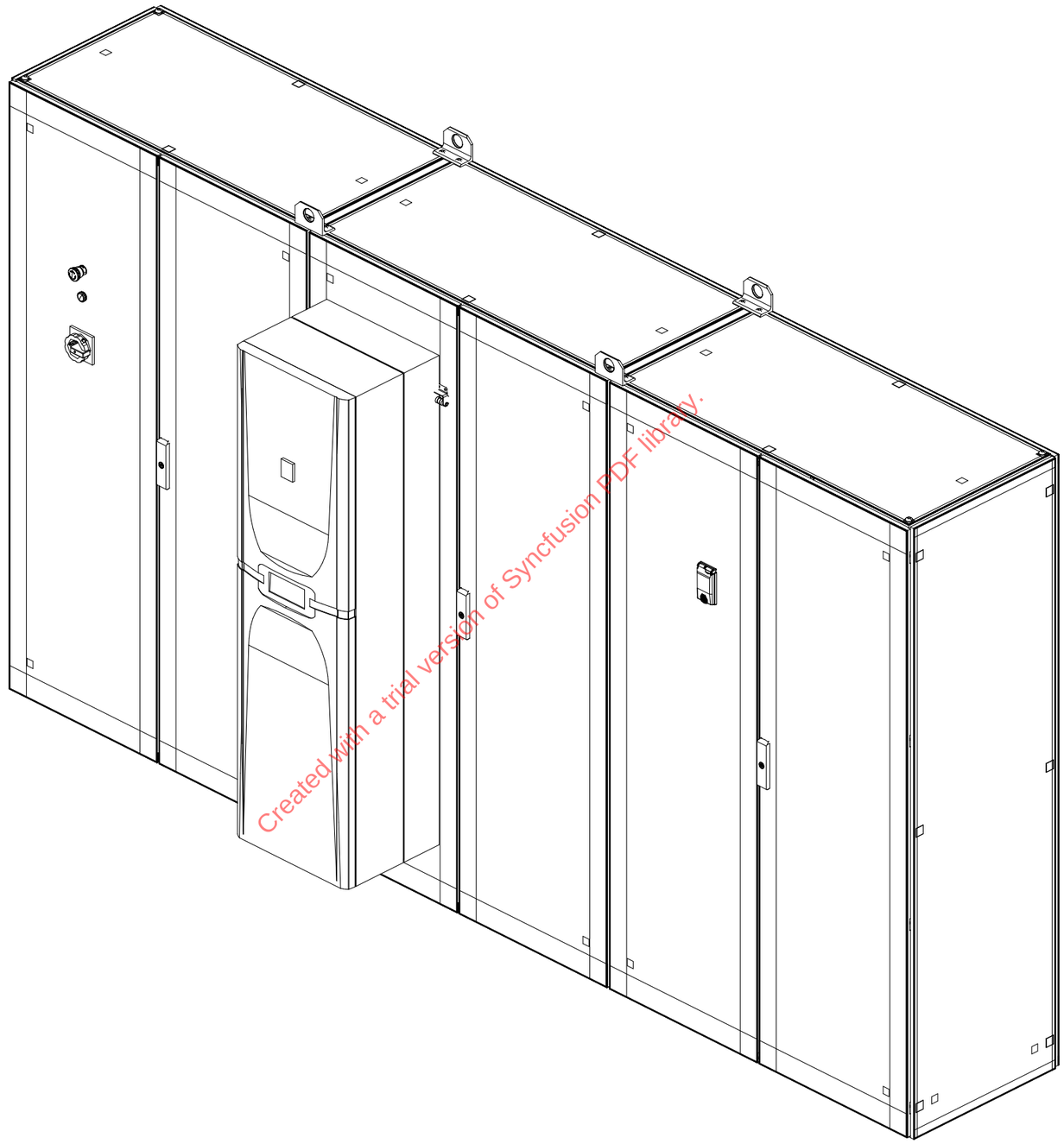
6 8

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	Model view layout space	1	= 4 + E1	function page 7/11
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 441
change	date	name	norm		originally.	created for.	created by.				



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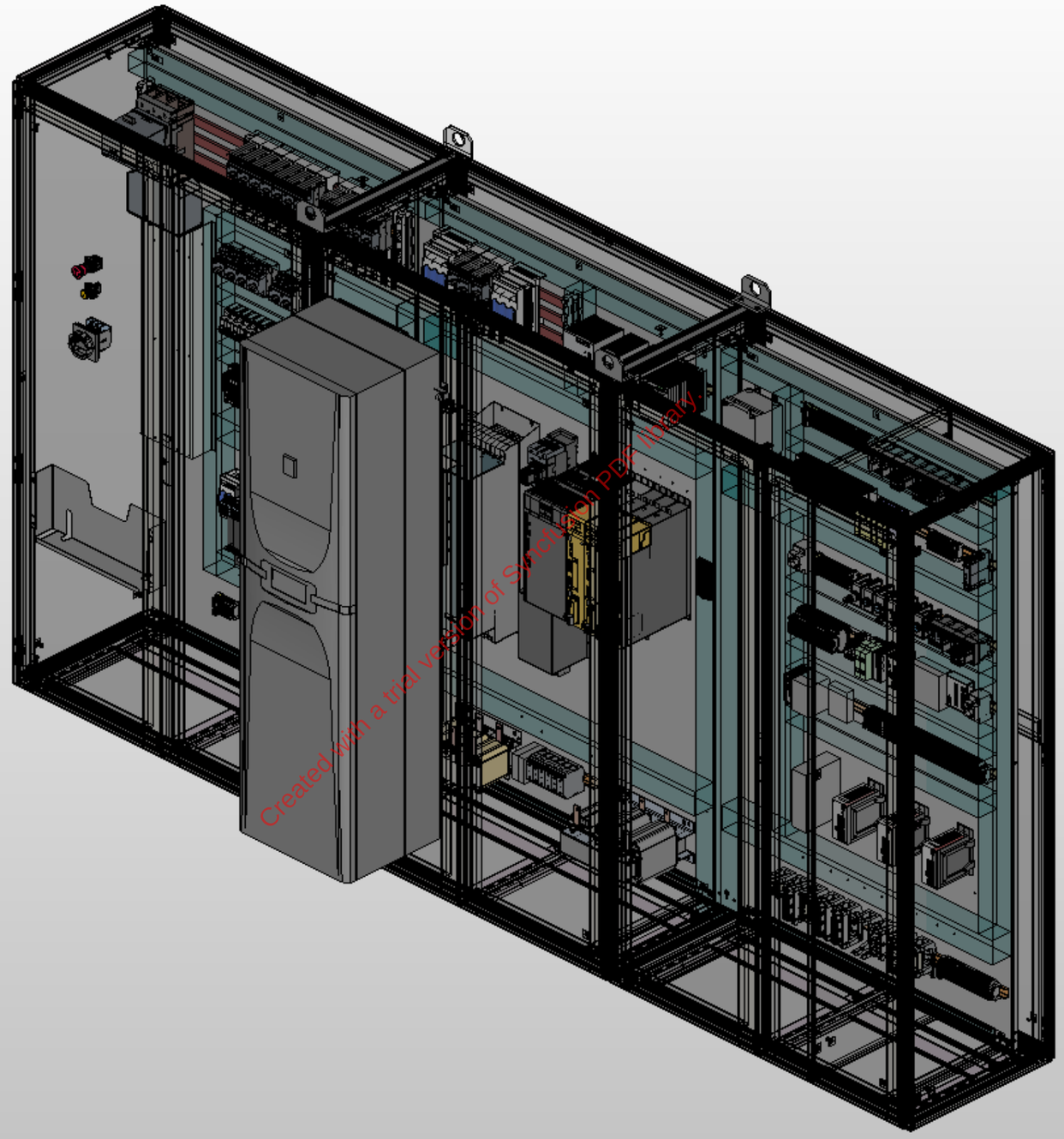
control cabinet

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	control cabinet overview 3D		= 4	function page
			design.	PED						+ E11	8/11
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				442



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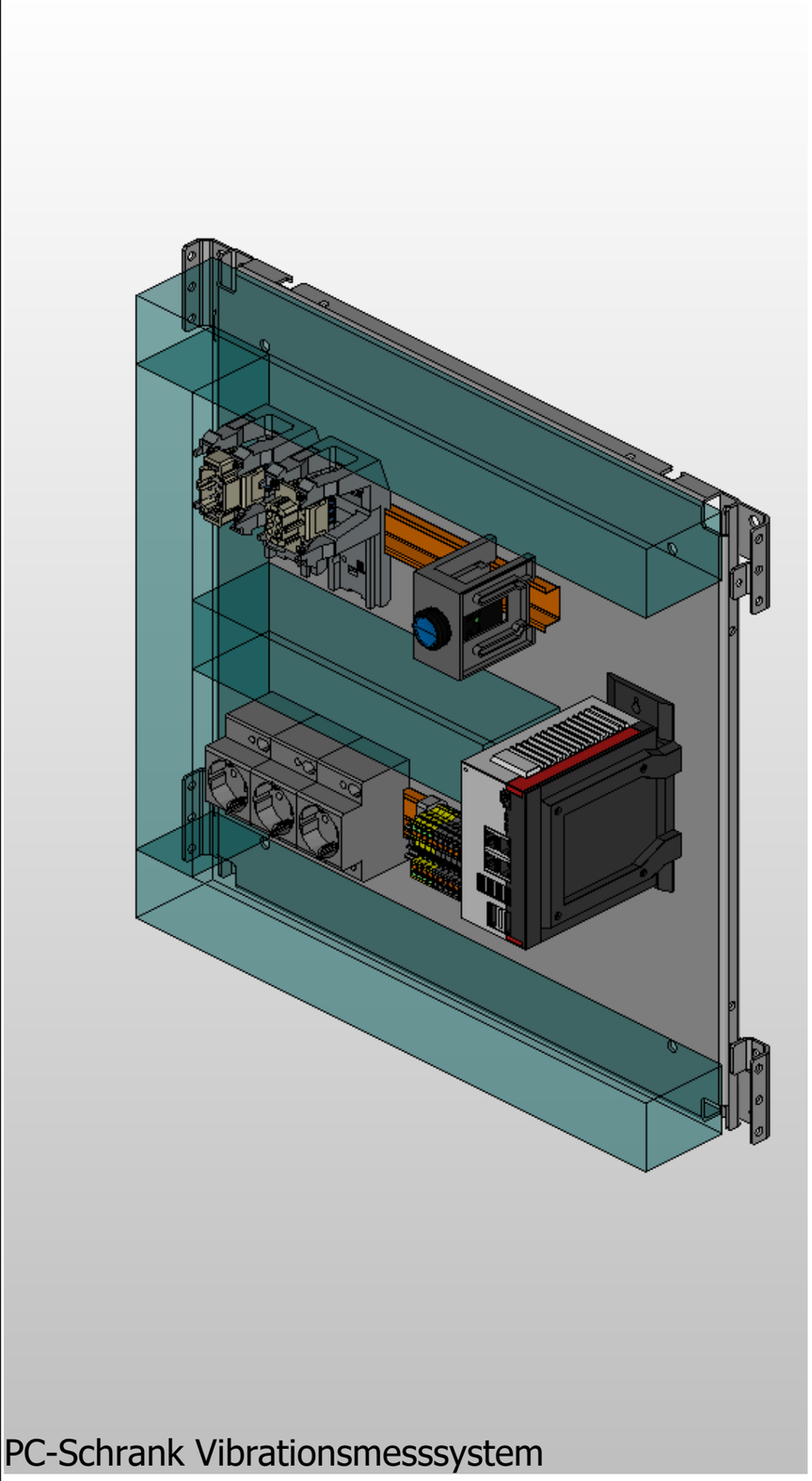
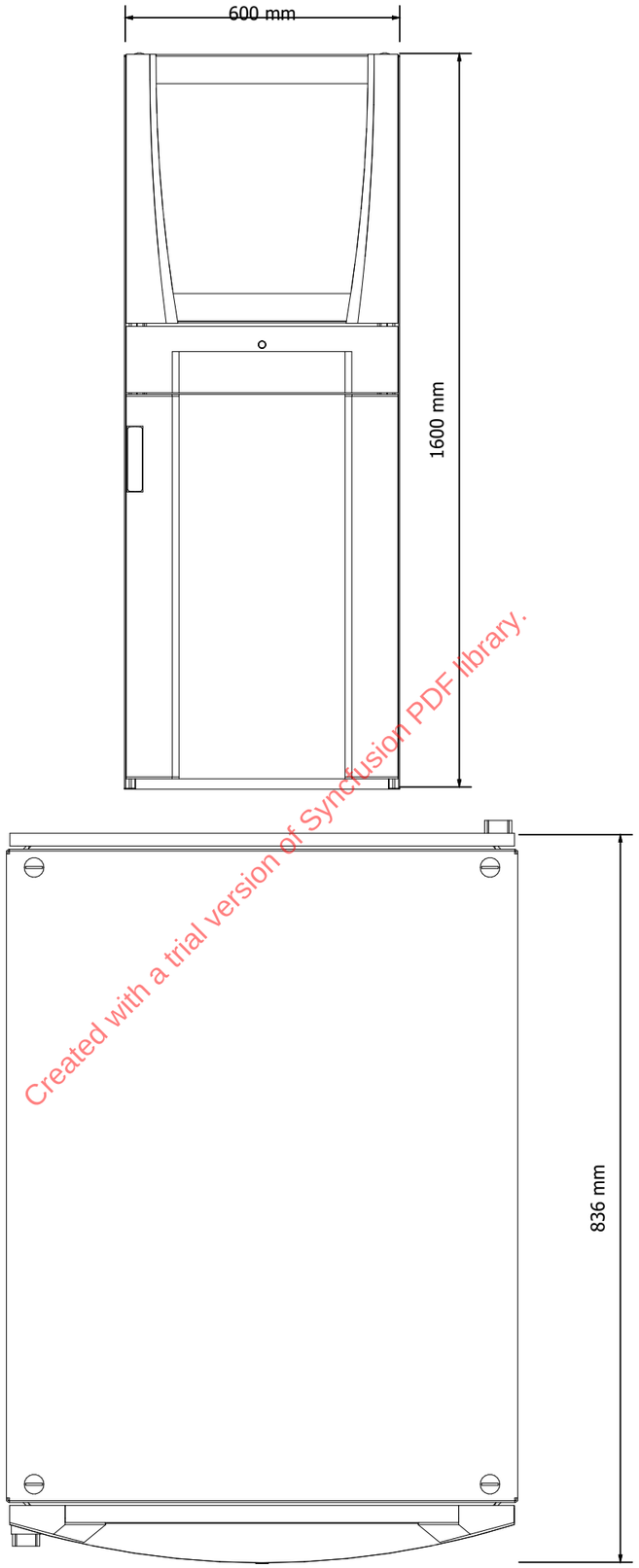
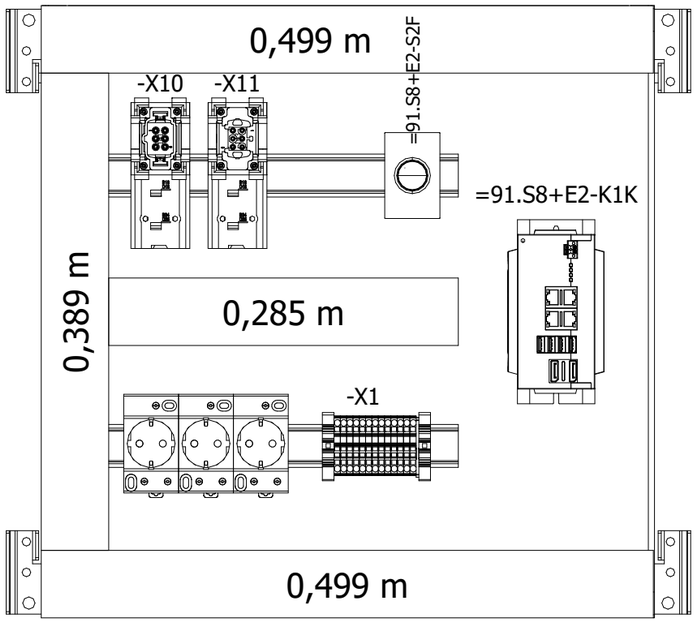
control cabinet

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	control cabinet overview 3D		= 4 + E11	function page 9/11
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 443
change	date	name	norm		originally.	created for.	created by.				







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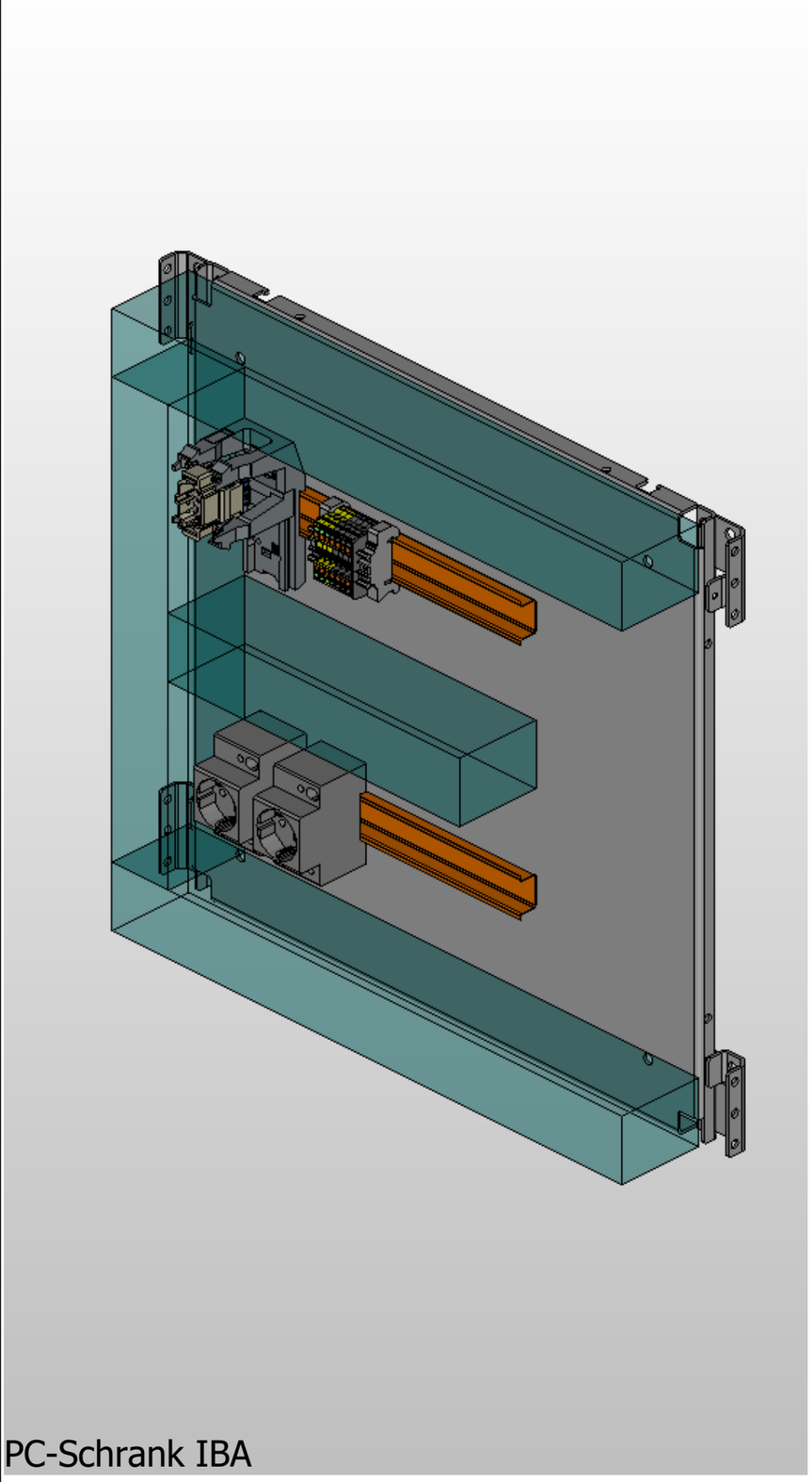
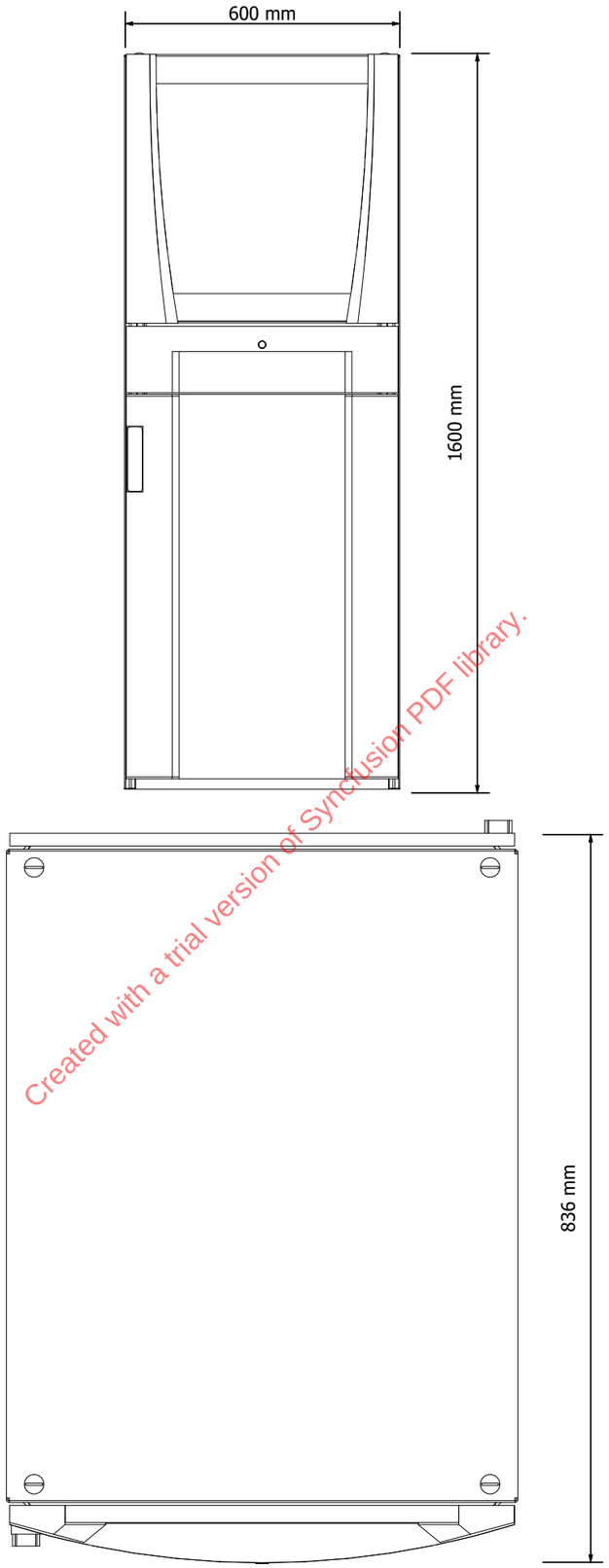
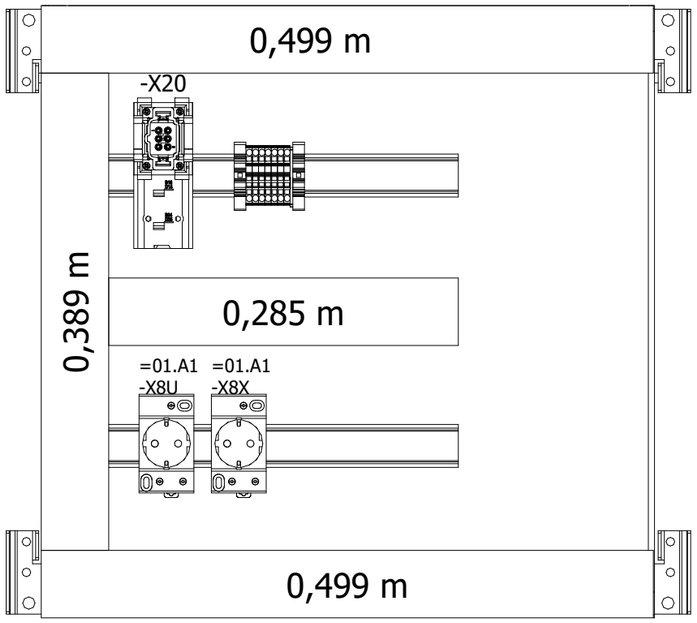
+E2 Vibrationsmessung

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	PC-cabinet +E2	1	= 4 +	function page 10/11
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 444
change	date	name	norm		originally.	created for.	created by.				







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+E3 IBA

10

=5/1

	2022-06-07	PED	date	2020-02-18	Hindalco Hirakud Indien		HERKULES	PC-cabinet +E3	1	= 4 +	function page 11/11
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 445
change	date	name	norm		originally.	created for.	created by.				

main drives

DT	ERP-No	type number	function	label	technical data	construct. form/ type of protect.
=21.C1.1+U2-M2D	6076879	DSC1-056KO64U30-54-EOA-DPP-K-AN-O-999	c-axis	3~ servo motor AC 3 phase	3,8A/1,7kW 5,4Nm 3000 1/min	IM B5 IP64
=21.C1.2+U2-M2D	6098455	DA1-160KO54I-17-5-DOB-1-NTU-KBR-AA-O-999	grinding wheel	3~ spindle motor AC 3 phases	88A 38kW 207Nm 1750 1/min	IM B3 IP54
=21.X1.1+U1-M2D	6076879	DSC1-056KO64U30-54-EOA-DPP-K-AN-O-999	X- axis	3~ servo motor AC 3 phase	3,8A 1,7kW/5,4Nm 3000 1/min	IM B5 IP64
=21.Z1.1+U1-M2D	6076878	DSC1-045MO64U30-54-EOA-DPP-K-AN-O-999	z-axis headstockside	3~ servo motor AC 3 phase	2,6A 1,3kW 4,2Nm 3000 1/min	IM B5 IP64
=21.Z1.1+U1-M3D	6076878	DSC1-045MO64U30-54-EOA-DPP-K-AN-O-999	z-axis tailstockside	3~ servo motor AC 3 phase	2,6A 1,3kW 4,2Nm 3000 1/min	IM B5 IP64
=22.C2.1+T1-M2D	6077692	DA1-132BO54I-10-5-DOB-1-9T9-KBN-AA-O-999	headstock	3~ spindle motor AC 3 phases	40A 16,5kW 158Nm 1000 1/min	IM B3 IP54
=25.Z5.1+T2-M2D	6092425	DSC1-045KO64U-20-54-EBA-DPP-K-AN-O-000	X-axis motor	3~ servo motor AC 3 phase	1,3A 0,5kW 2,5Nm 2000 1/min	IM B5 / IP64

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auxiliary engines

DT	ERP-No	type number	function	label	technical data	construct. form/ type of protect.
=01.A1+E11-M6F	1187354	SK3108.100	internal fan +E11	1~ SK Enclosure internal fan, 160 m³/h, 230 V , 1~, 50/60 Hz		
=01.A1+E12-M6J	1187354	SK3108.100	internal fan +E12	1~ SK Enclosure internal fan, 160 m³/h, 230 V , 1~, 50/60 Hz		
=11.H11+X3.1-M1D	6103019	MPN44-Z12,3-B10-DKT-UF2G1-AB1E130-P	hydraulic softloader / face plate adjustment		415V/50Hz 4,9A/2,2kW 1360 1/min	
=21.C1.2+U2-M7D			motor fan grinding wheel motor		415V/50Hz 0,7A 0,47kW	
=21.C1.2+U2-M8D	1159259	K21R80K4	grinding shaft lubrication	3~ Hilfsmotor AC 3 Phasen	400V/50Hz 1,6A 0,55kW 1410 1/min	
=21.X1.1+U1-M5E	1046948	ME5-2000+299	lubrication X-axis	3~ Zahnradpumpe	415V/50Hz 0,3A/0,07kW 2700 1/min	IP54
=21.Z1.1+U1-M6D	1628933	M2	lubrication Z-axis lubrication sprocket	3~ Zahnradpumpe	360-440V/50Hz 0,29A 0,075kW 2700 1/min	IP54
=21.Z1.1+X3-M5D	1628933	M2	lubrication V-track Z-axis	3~ Zahnradpumpe	360-440V/50Hz 0,29A 0,075kW 2700 1/min	IP54
=22.C2.1+T1-M4D			motor fan headstock motor		415V/50Hz 0,27A 0,15kW	
=25.Z5.1+T2-M4D	1152536	MFE5-BW3+299	tailstock Z-adjustment lubrication	3~ Schmieraggregat	415V/50Hz 0,29A 0,07kW 2700 1/min	Vogel MFE5/BW3
=28.C8.1+Z1-M2D	1225207	T6L4-140	swivel motor measuring gauge	Elektrozylinder	400V/50Hz 1,2A 0,37kW 1500 1/min RACO	
=28.Y8.1+Z1-M1C	6047252	LSC61G0812		Linearmotor Primärteil Eisenlos	Baumüller LSC61G0812 Fn=89N/Fmax=380N In=1,1/Imax=4,6A	
=28.Y8.1+Z1-M1C	6047258	LSM61-0808		Linearmotor Magnetleiste	Baumüller LSC61G0812 Fn=89N/Fmax=380N In=1,1/Imax=4,6A	
=28.Y8.1+Z1-M1C	6047253	LSM61-0804		Linearmotor Magnetleiste	Baumüller LSC61G0812 Fn=89N/Fmax=380N In=1,1/Imax=4,6A	
=61.L1+X1-M1D	6102971	MTR15-8/2A-W-A-HUUV	coolant pump	3~ Kreiselpumpe mit Motor	415V/50Hz 5,5A 3,0kW 2900 1/min	
=61.L1+X1-M2C	6017933	SAF47DRS71S4	magnetic filter	3~ worm gear motor	415V/50Hz 1,1A/0,37kW	
=61.L1+X1-M2J	5000127	SAF47DRS71S4	paper filter	3~ Schneckengetriebemotor rechtwinklig	415V/50Hz 1,1A/0,37kW	
=61.L3+X3-M1D	1060787	FZ-A	grease lubrication steadies	Fettschmierpumpe	415V/50Hz 0,18KW 0,59A 1320 1/min	
=61.L11+Z7-M1D	6106846	JC-P-300-KBK-BR-M-250-4000			380-415V 50Hz 0,4kW 2A ELECTROLIFT SiXX	IP55
=91.S3+X12-M5D	6031366	KC60-Z+274	water pump USONIC	Kleinkreiselpumpe	415V 50Hz 2,2A 0,92kW 2840 1/min	IP55

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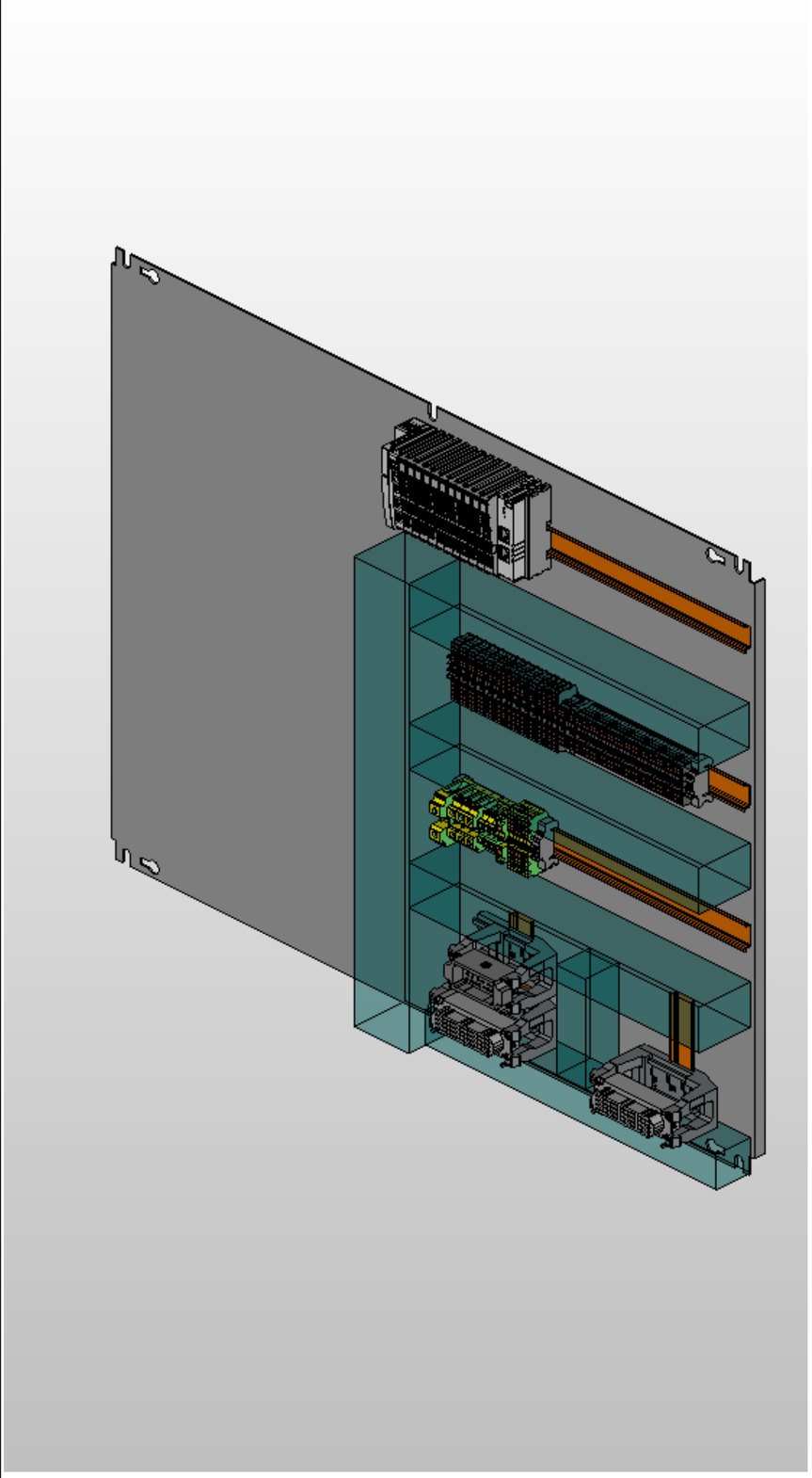
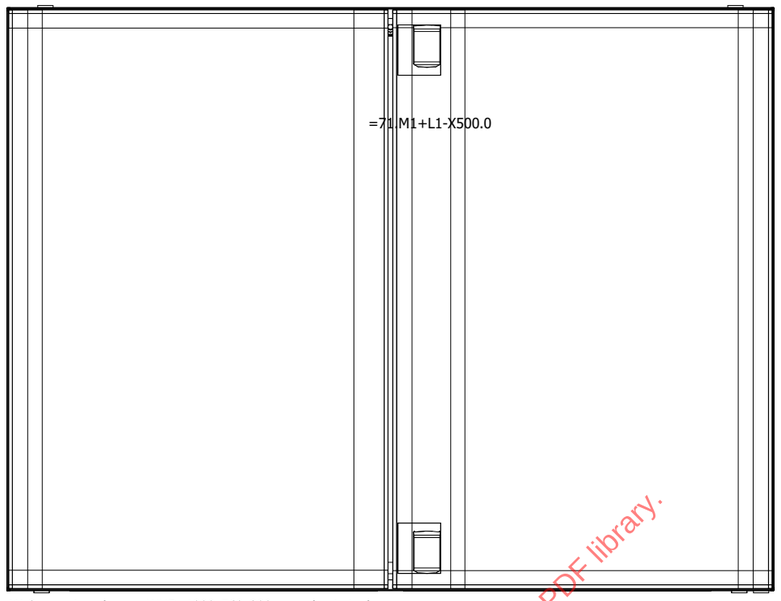
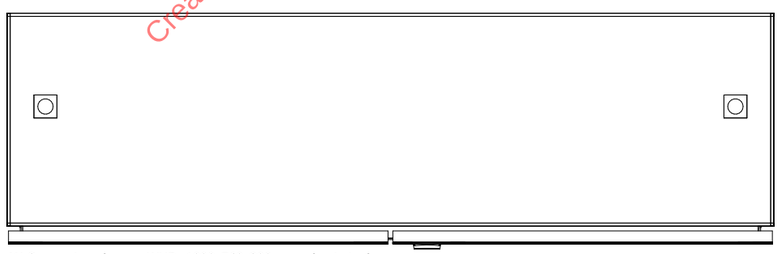
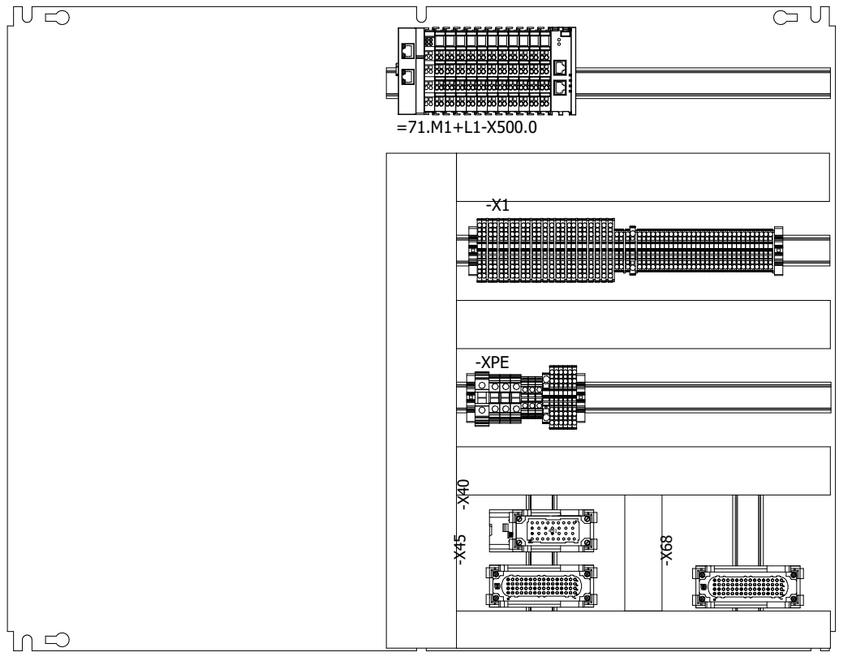




AX Compact enclosure, WHD: 1000x760x300 mm, sheet steel



AX Compact enclosure, WHD: 1000x760x300 mm, sheet steel



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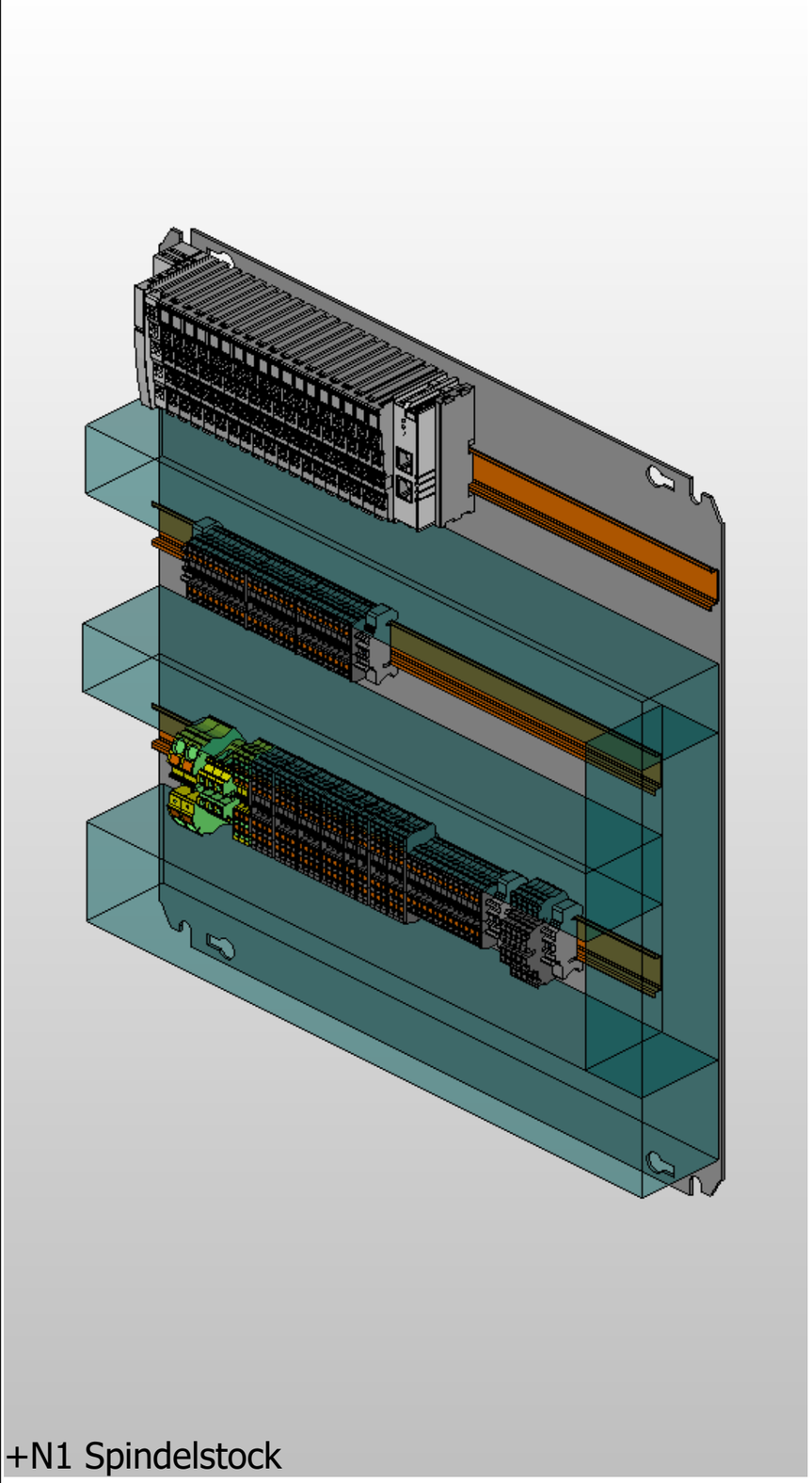
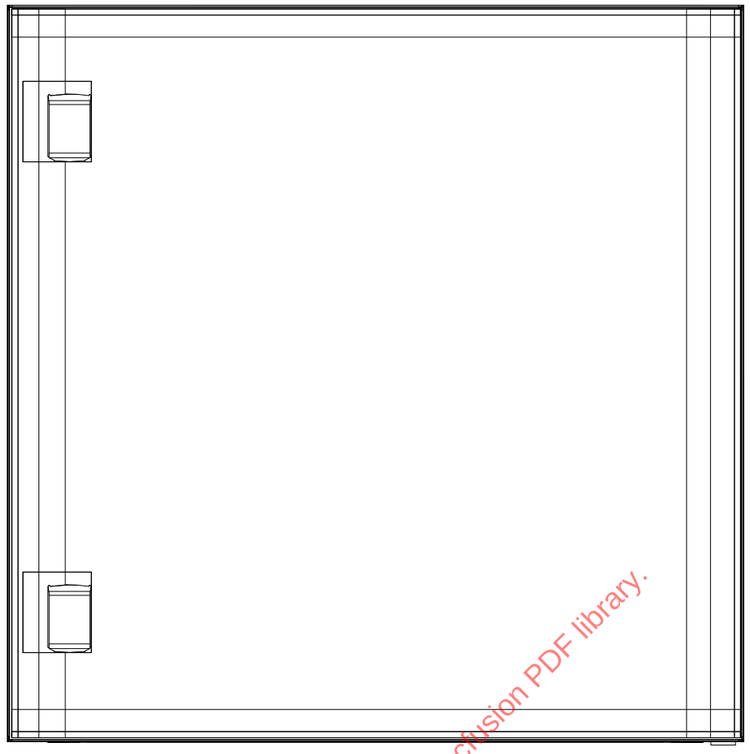
=5/2

+L1 Klemmenkasten Bettschlitten

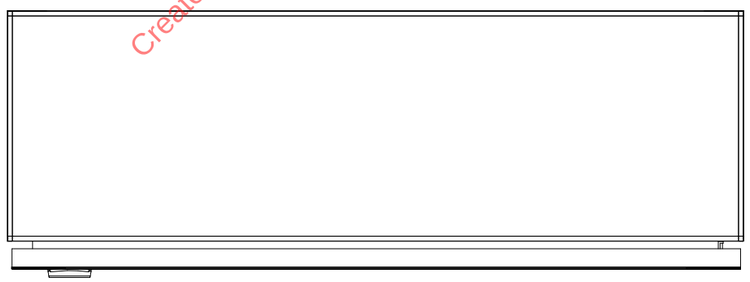
4

	2022-11-04		date	2020-02-18	Hindalco Hirakud Indien		HERKULES	carriage terminal box +L1	1	= 6 +	function page 3/11
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 448
change	date	name	norm		originally.	created for.	created by.				

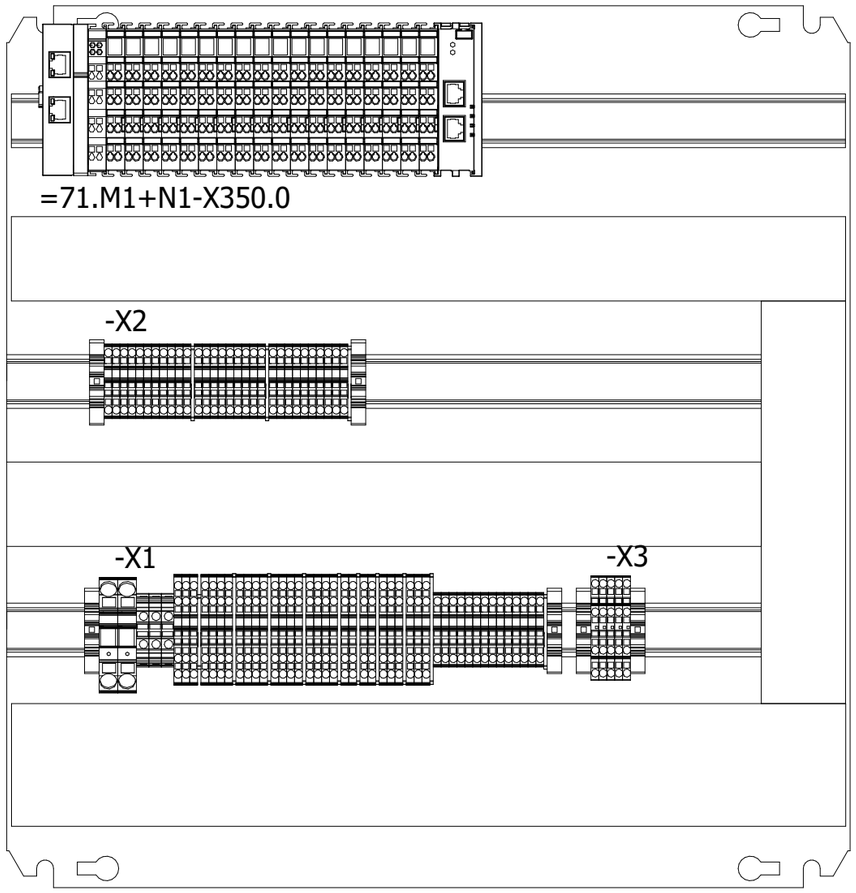




AX Compact enclosure, WHD: 600x600x210 mm, sheet steel



AX Compact enclosure, WHD: 600x600x210 mm, sheet steel



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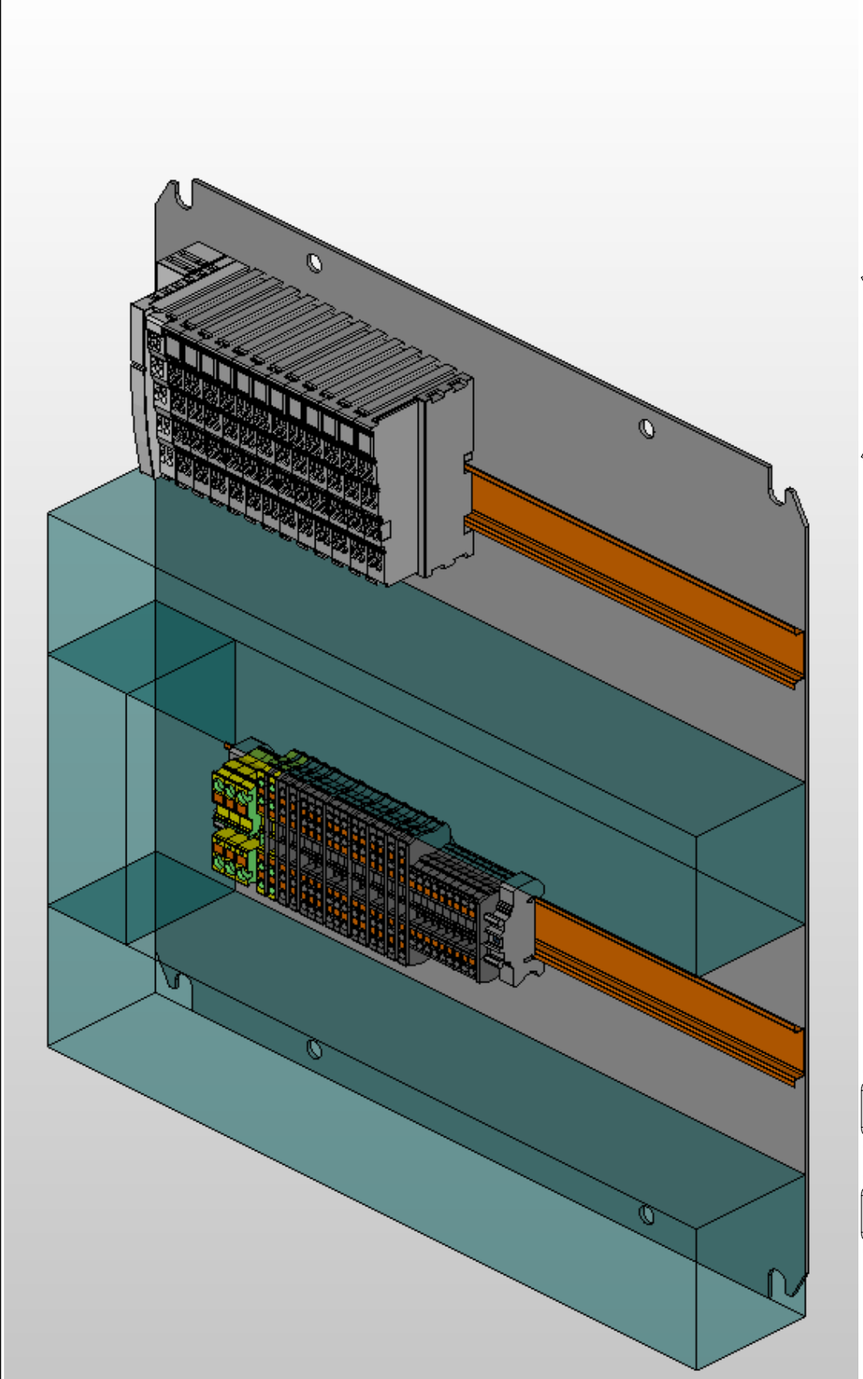
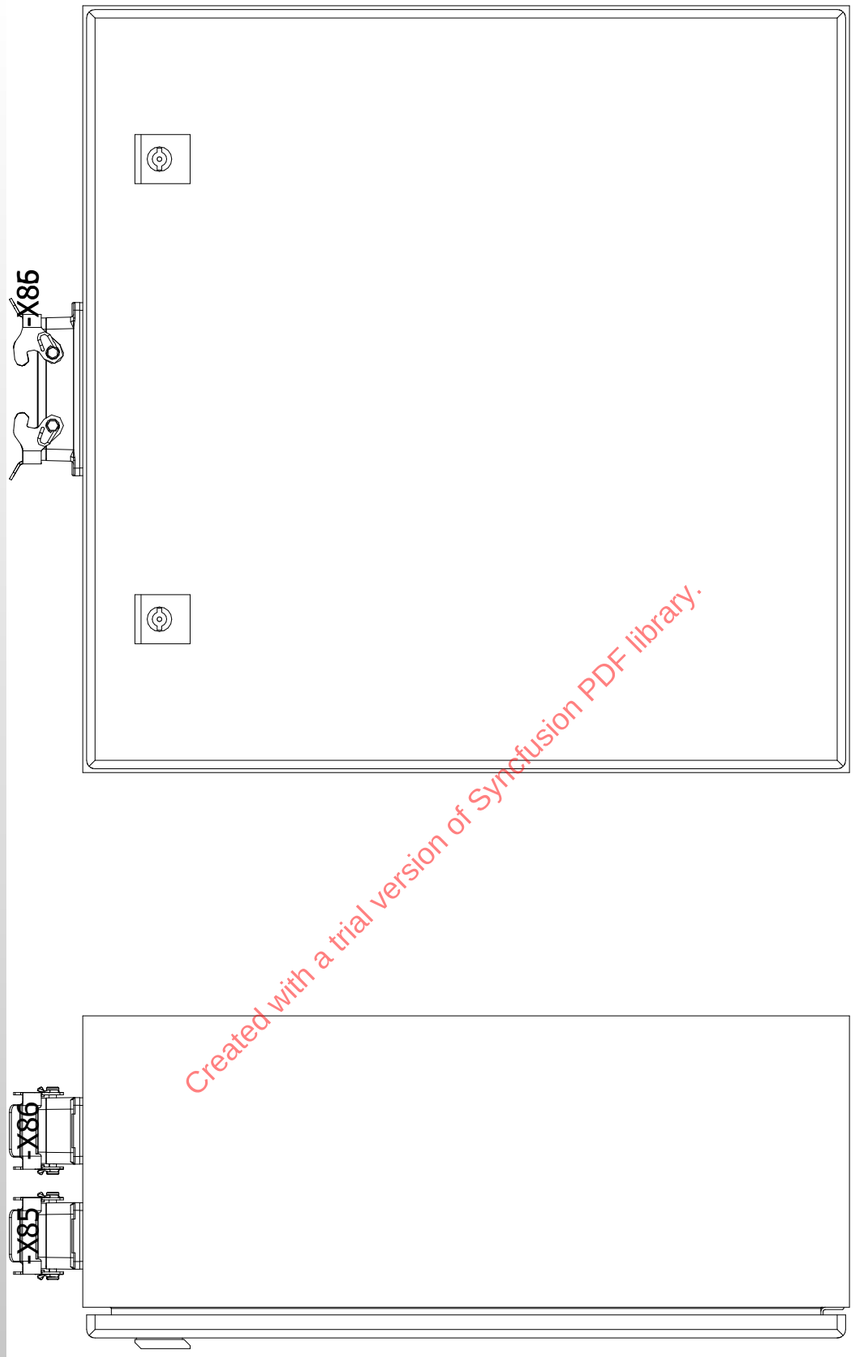
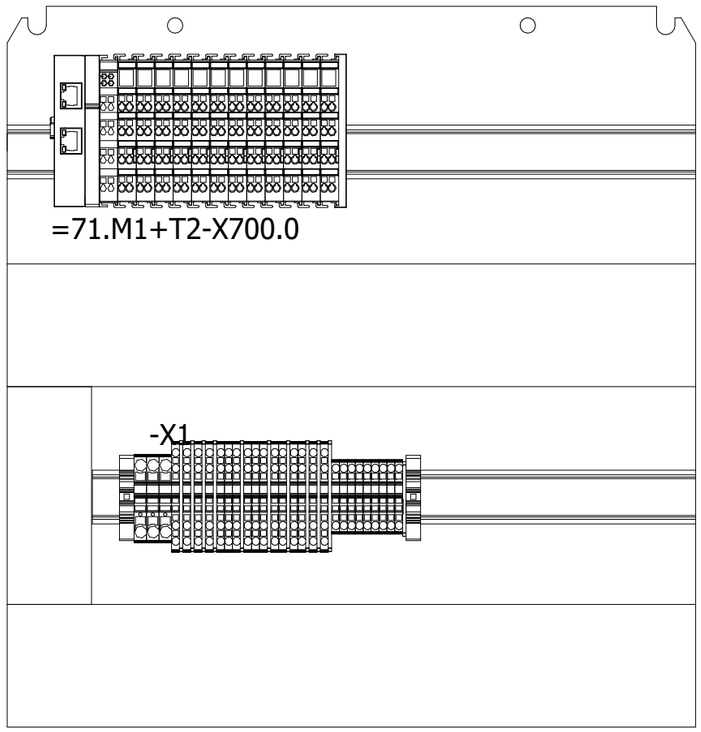
3 +N1 Spindelstock 5

	2022-11-04		date	2020-02-18	Hindalco Hirakud Indien		HERKULES	headstock +N1	1	= 6 + N1	function page 4/11
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 449
change	date	name	norm		originally.	created for.	created by.				



+T2 Reitstock

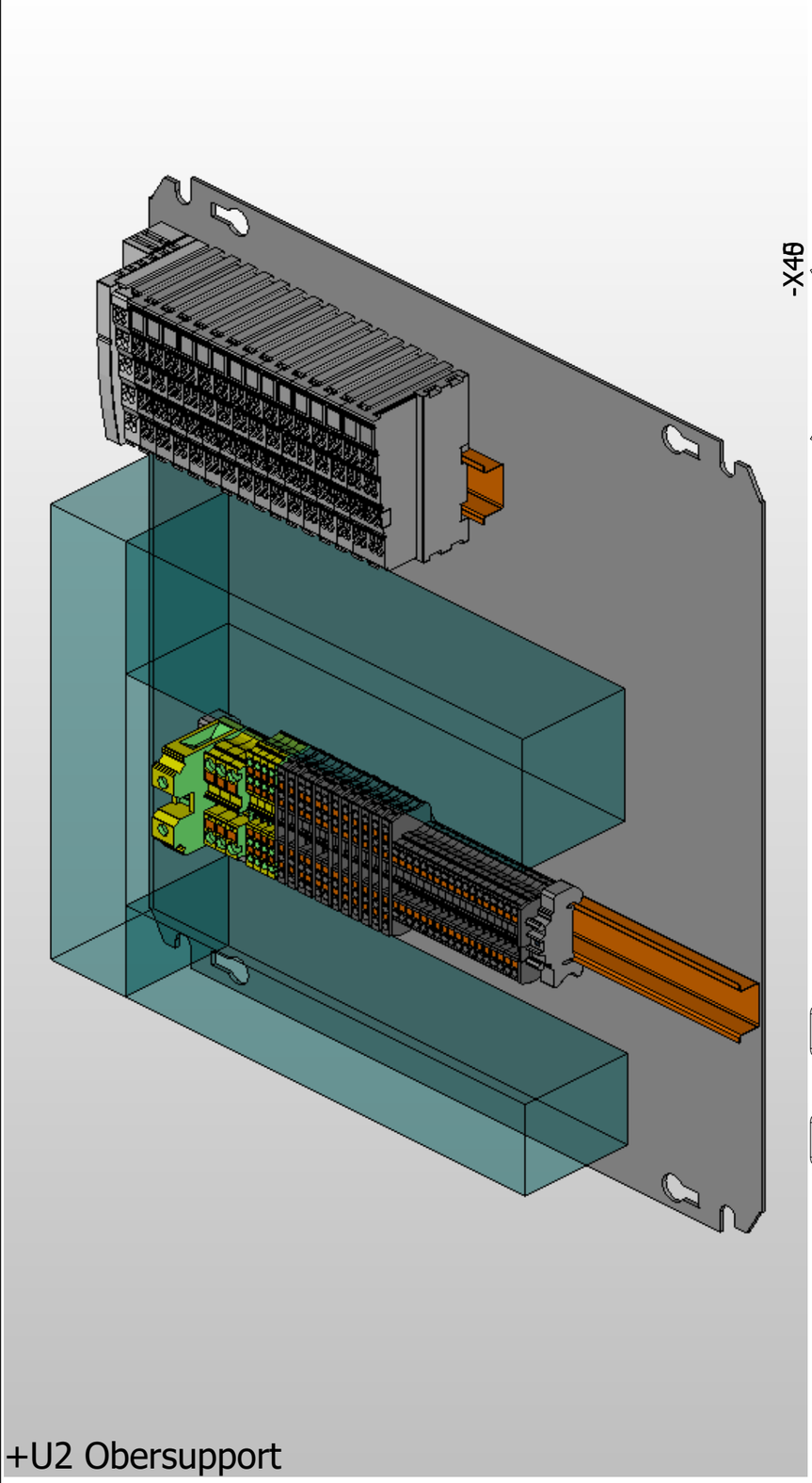


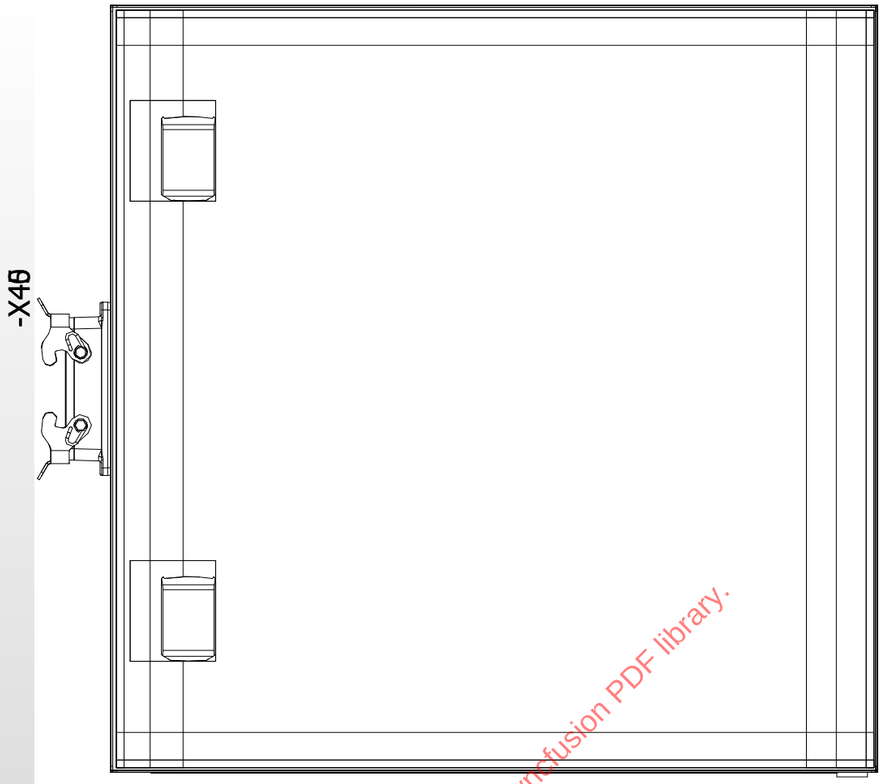


Created with a trial version of Syncfusion PDF library.

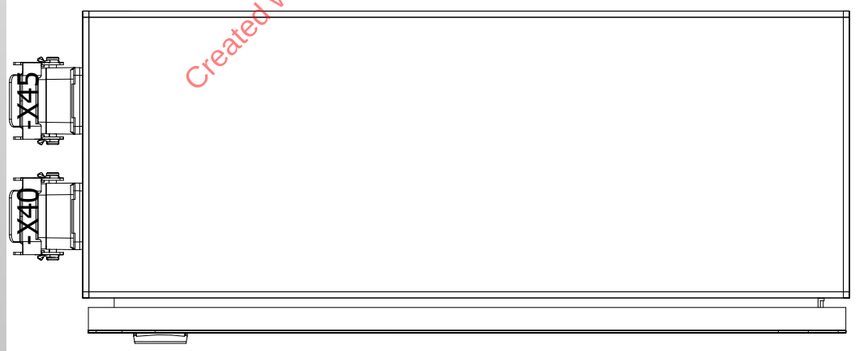
+T2 Reitstock

	2022-11-04		date	2020-02-18	Hindalco Hirakud Indien		HERKULES	tailstock +T2	1	= 6 + T2	function page 5/11
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 450
change	date	name	norm		originally.	created for.	created by.				

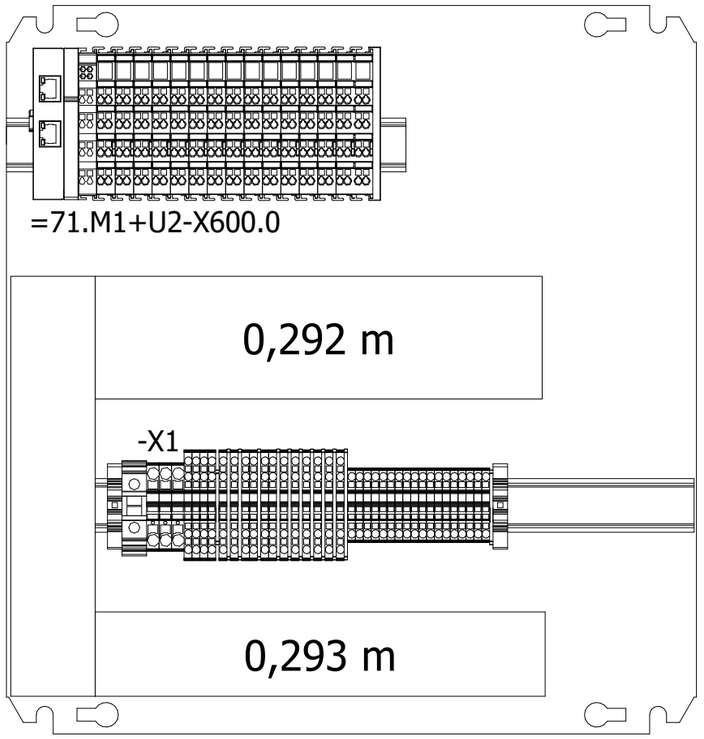




AX Compact enclosure, WHD: 500x500x210 mm, sheet steel



AX Compact enclosure, WHD: 500x500x210 mm, sheet steel



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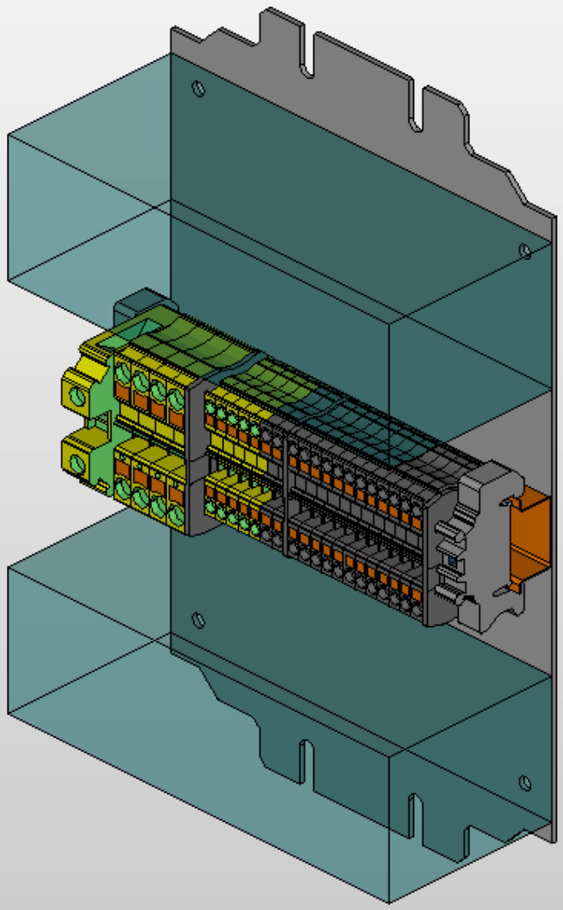
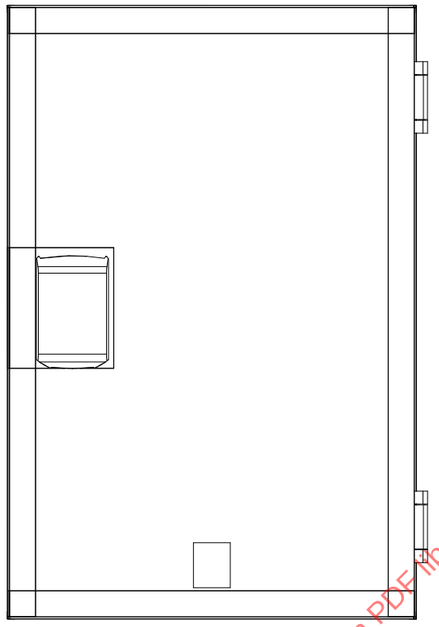
5 +U2 Obersupport 7

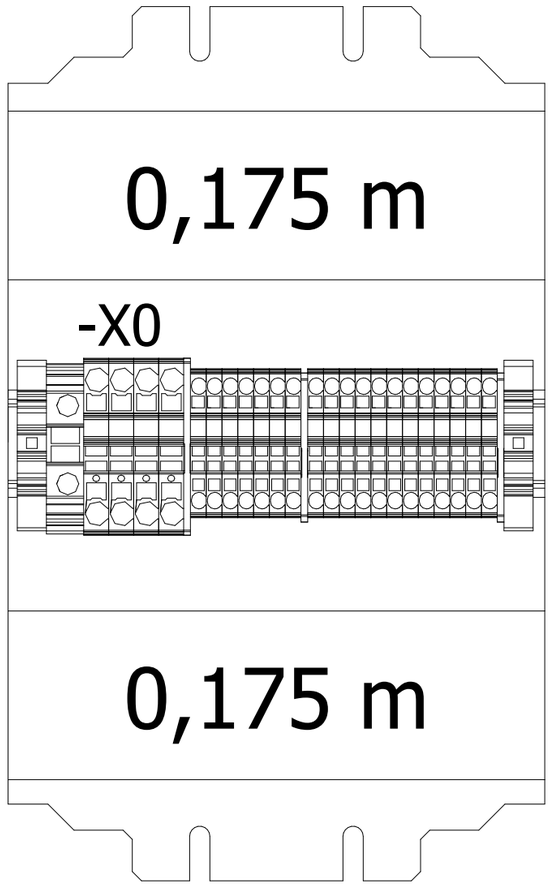
	2022-11-04		date	2020-02-18	Hindalco Hirakud Indien		HERKULES	upper saddle +U2	1	= 6 + U2	function page 6/11
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 451
change	date	name	norm		originally.	created for.	created by.				

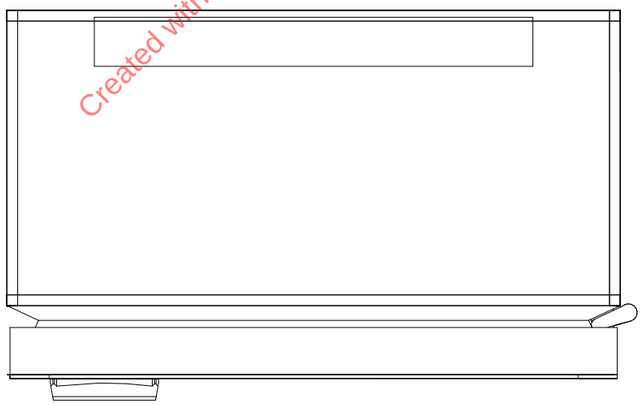


+X1 Wasserversorgung



KX E-Box, WHD: 200x300x120 mm, sheet steel





KX E-Box, WHD: 200x300x120 mm, sheet steel

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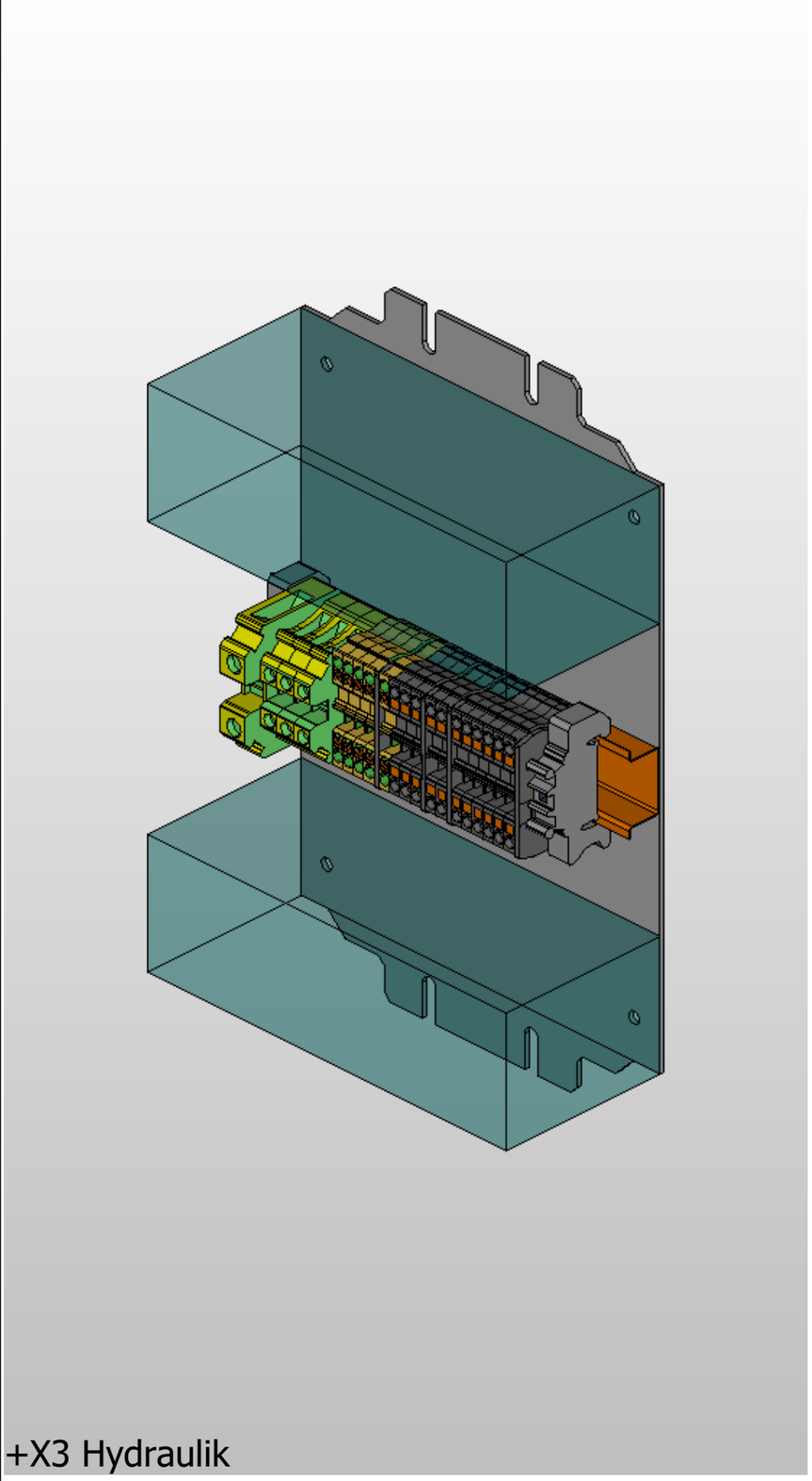
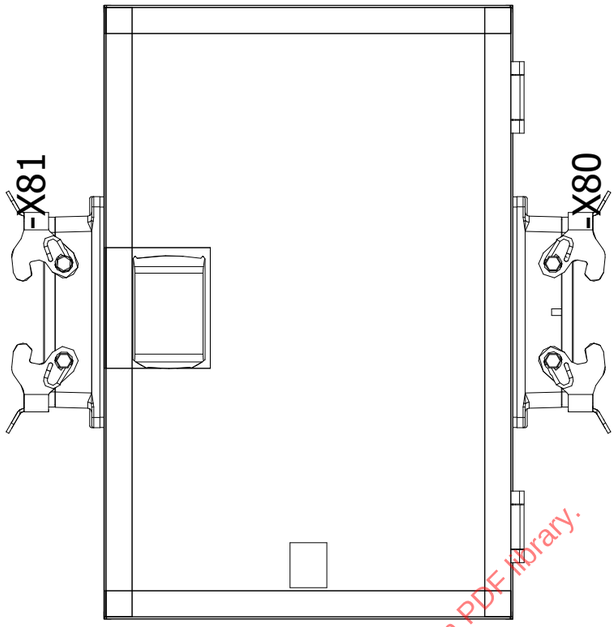
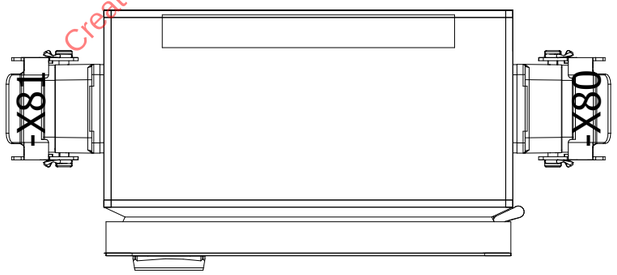
	2022-11-04		date	2020-02-18	Hindalco Hirakud Indien		HERKULES	water supply X1	1	= 6	function page 7/11
			design.	PED						+ X1	
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 452
change	date	name	norm		originally.	created for.	created by.				

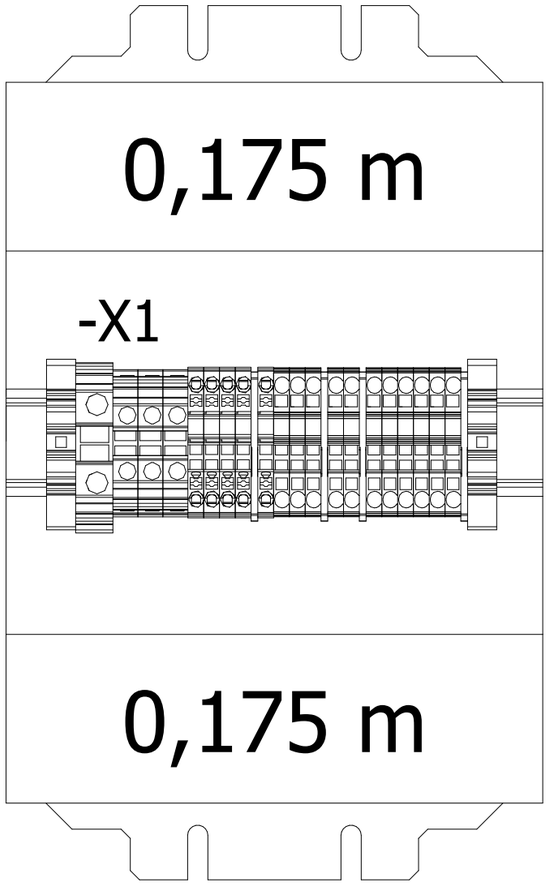




KX E-Box, WHD: 200x300x120 mm, sheet steel



KX E-Box, WHD: 200x300x120 mm, sheet steel



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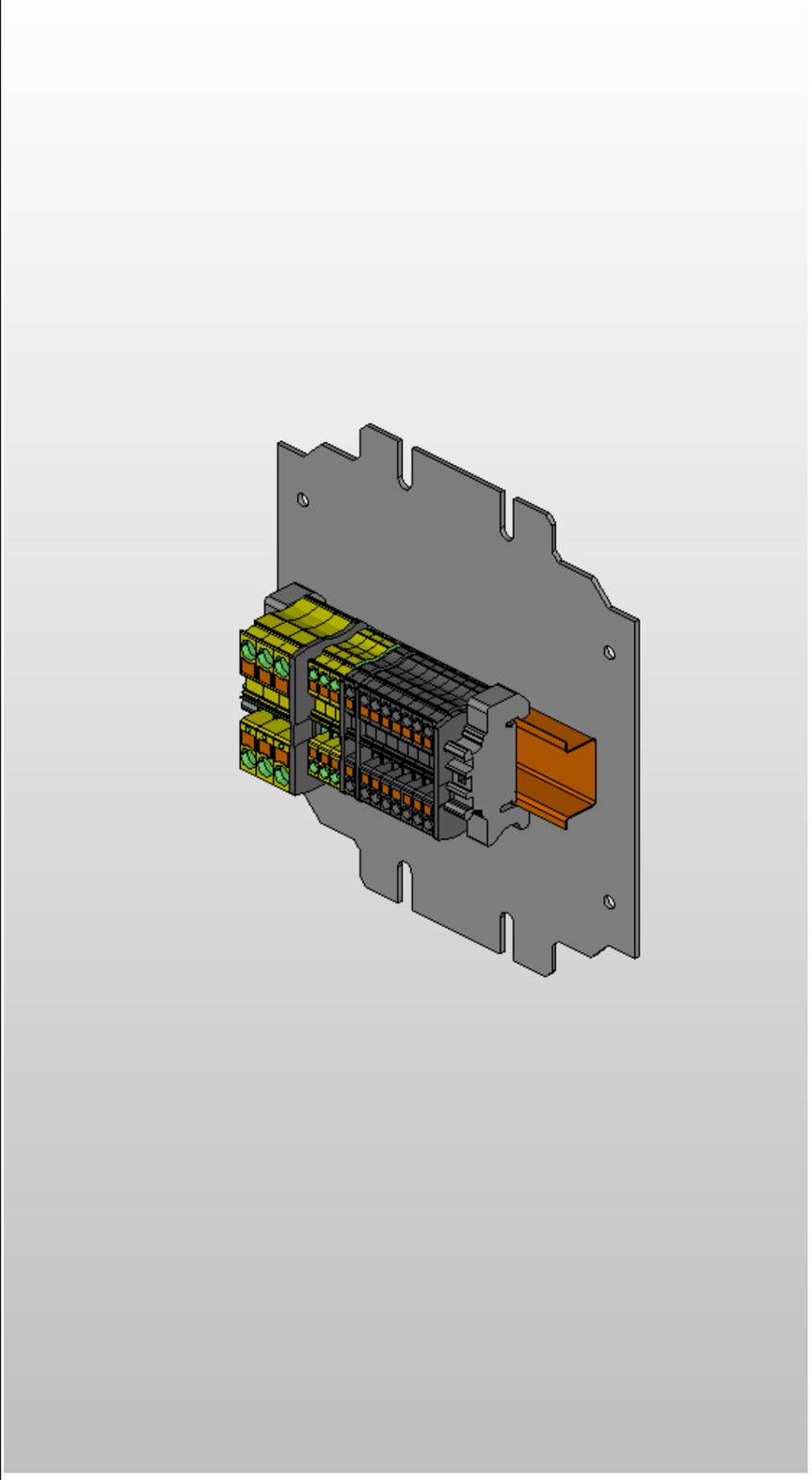
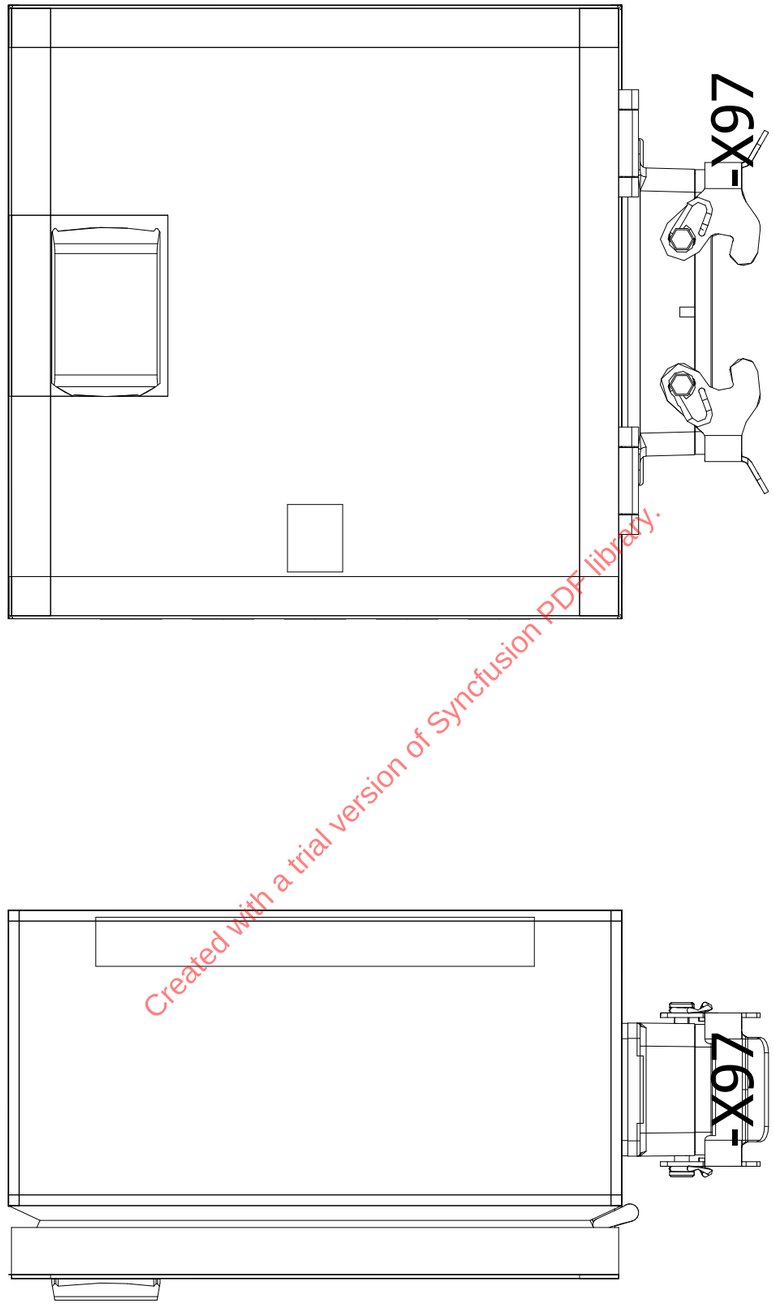
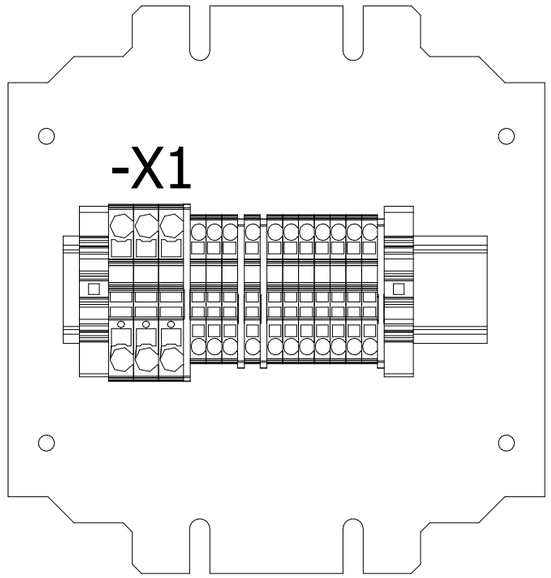
7 +X3 Hydraulik 9

	2022-11-04		date	2020-02-18	Hindalco Hirakud Indien		HERKULES	hydraulic +X3	1	= 6 / + X3	function page 8/11
			design.	PED					98290 WS450 KL x 5500 CNC Monolith	2953	page 453
			check.								
change	date	name	norm		originally.	created for.	created by.				







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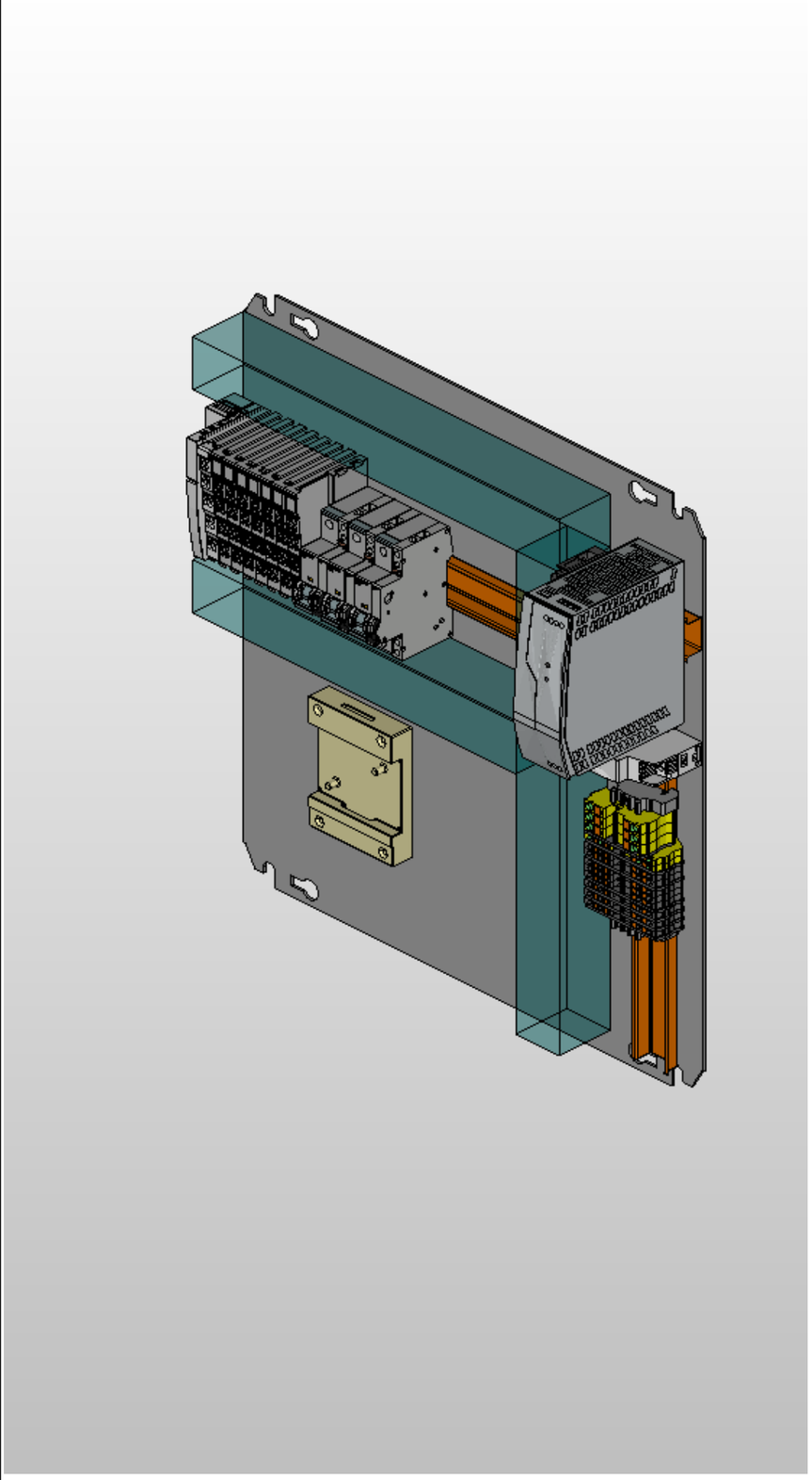
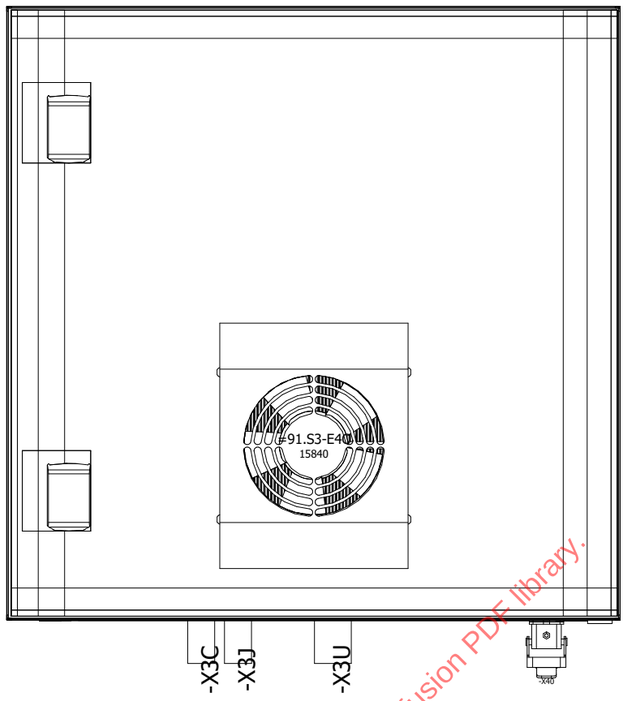
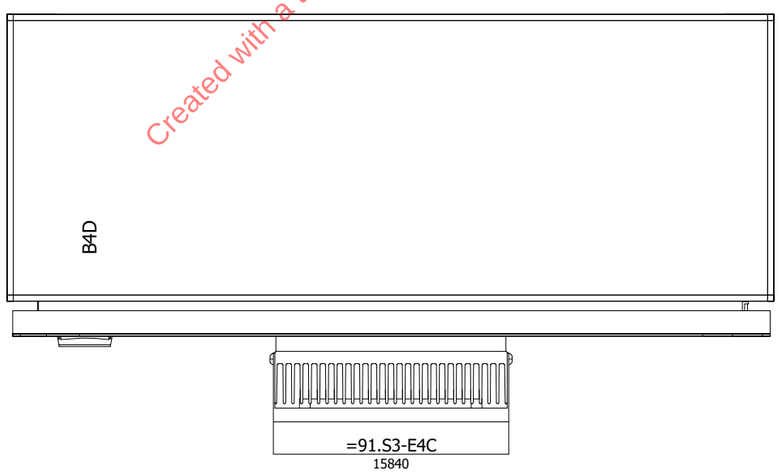
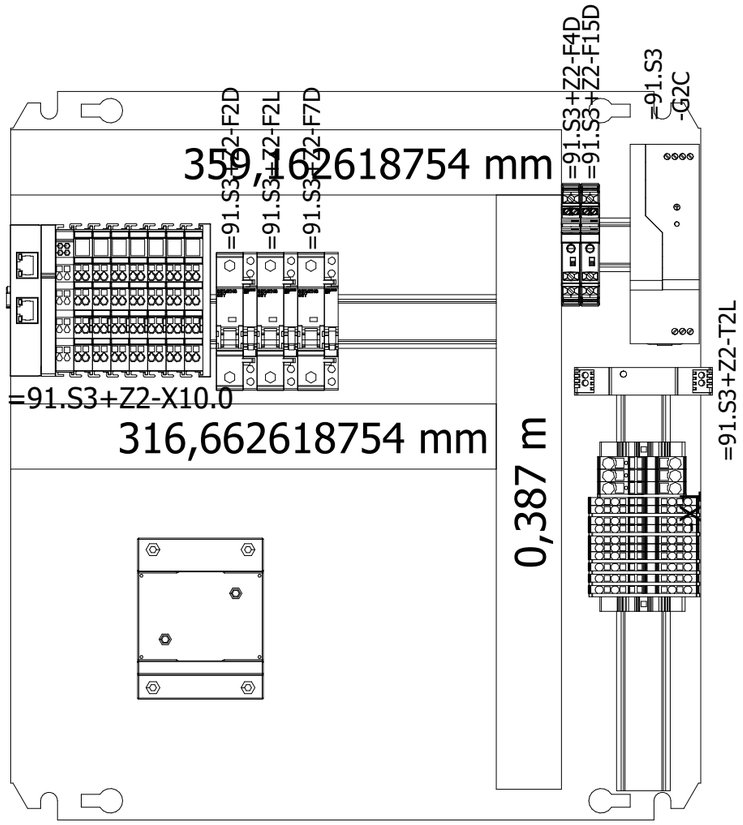
8 +X12 - Wasserversorgung Ultraschall 10

	2022-11-04		date	2020-02-18	Hindalco Hirakud Indien		HERKULES	water supply USONIC +X12	1	= 6 + X12	function page 9/11
			design.	PED							
			check.						98290 WS450 KL x 5500 CNC Monolith	2953	page 454
change	date	name	norm		originally.	created for.	created by.				









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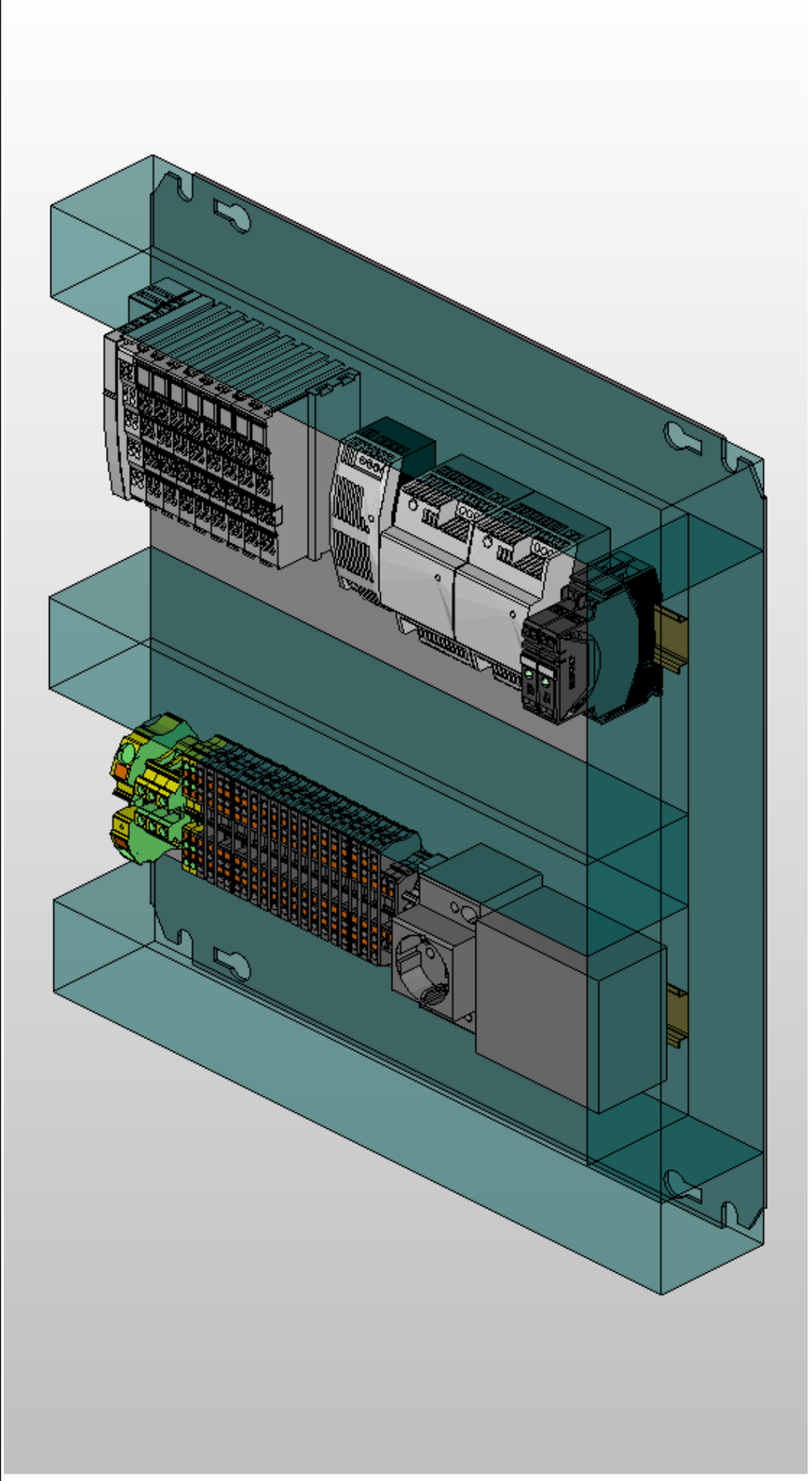
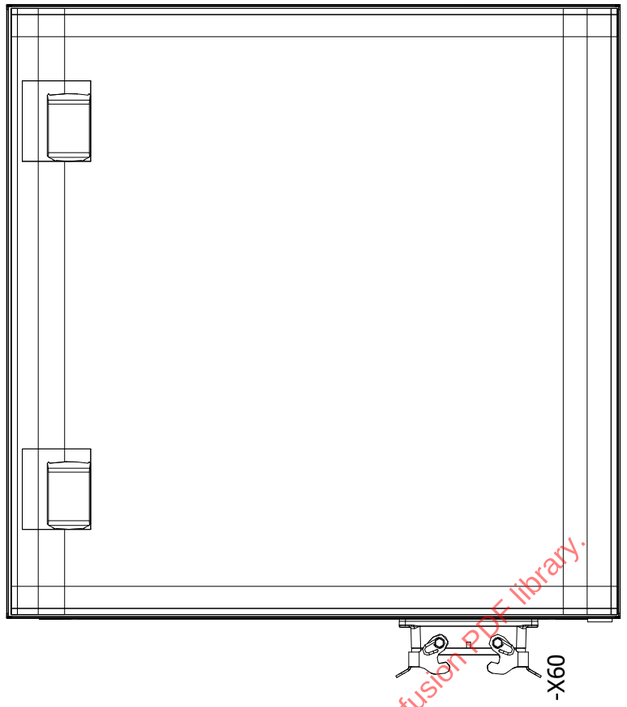
9

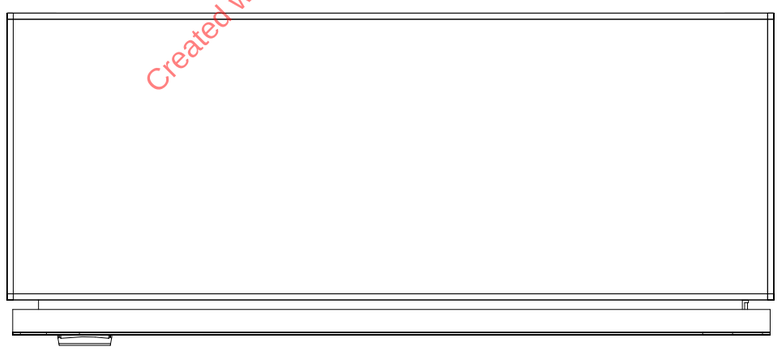
+Z2 - 3-fach

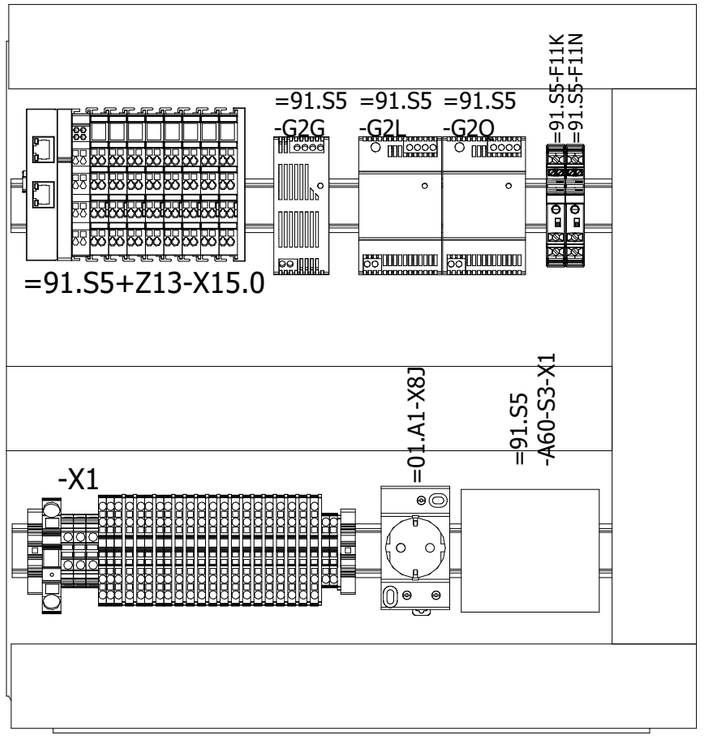
11

	2022-11-04		date	2020-02-18	Hindalco Hirakud Indien		HERKULES	USONIC +Z2	1	= 6 + Z2	function page 10/11
			design.	PED					98290 WS450 KL x 5500 CNC Monolith	2953	page 455
			check.								
change	date	name	norm		originally.	created for.	created by.				









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10

+Z13 RSIS/RSLD

=7/0

	2022-11-04		date	2020-02-18	Hindalco Hirakud Indien		HERKULES	RSIS/RSLD +Z13	1	= 6	function page
			design.	PED						+ Z13	11/11
			check.						88290 WS450 KL x 5500 CNC Monolith	2953	page
change	date	name	norm		originally.	created for.	created by.				456

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